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Class PE 1111

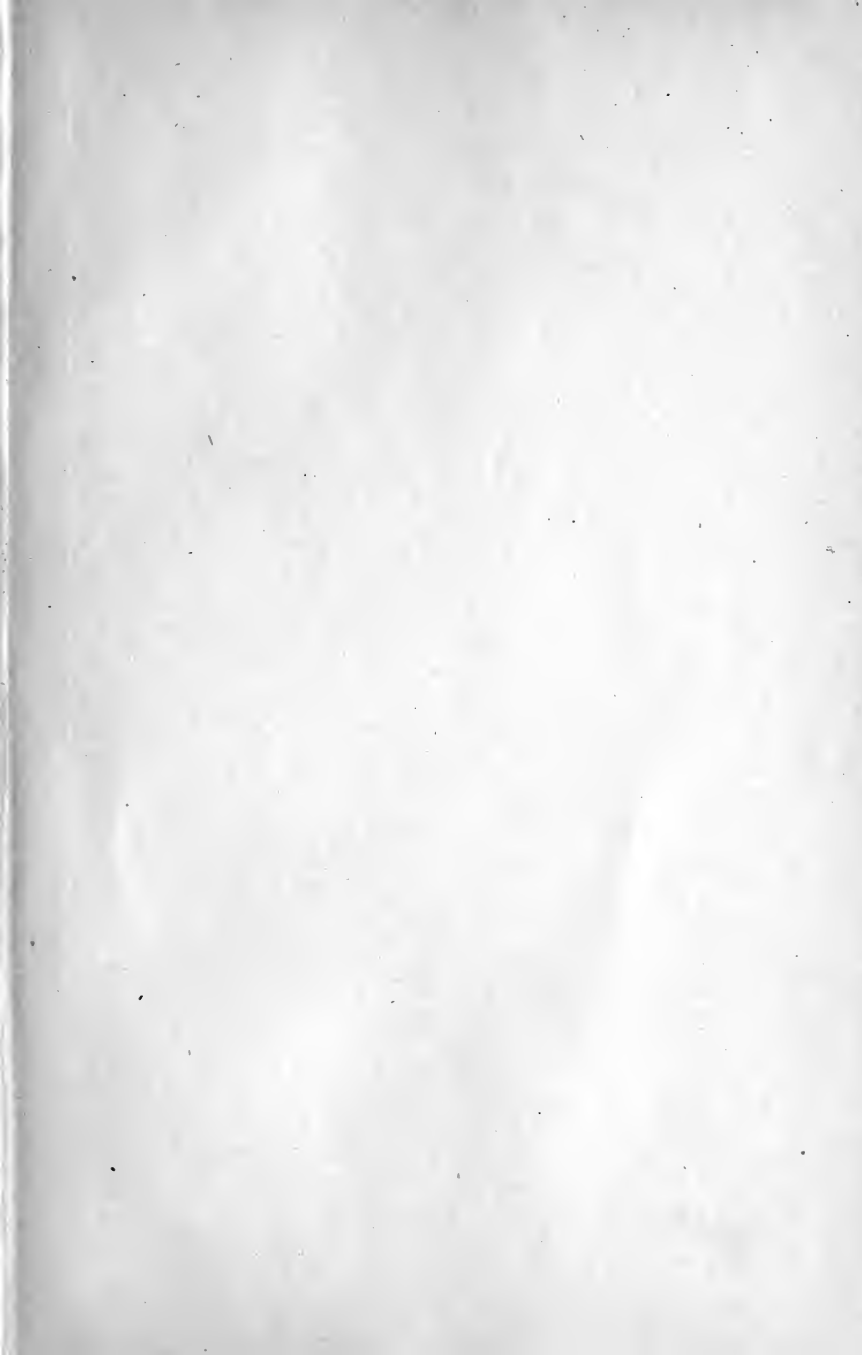
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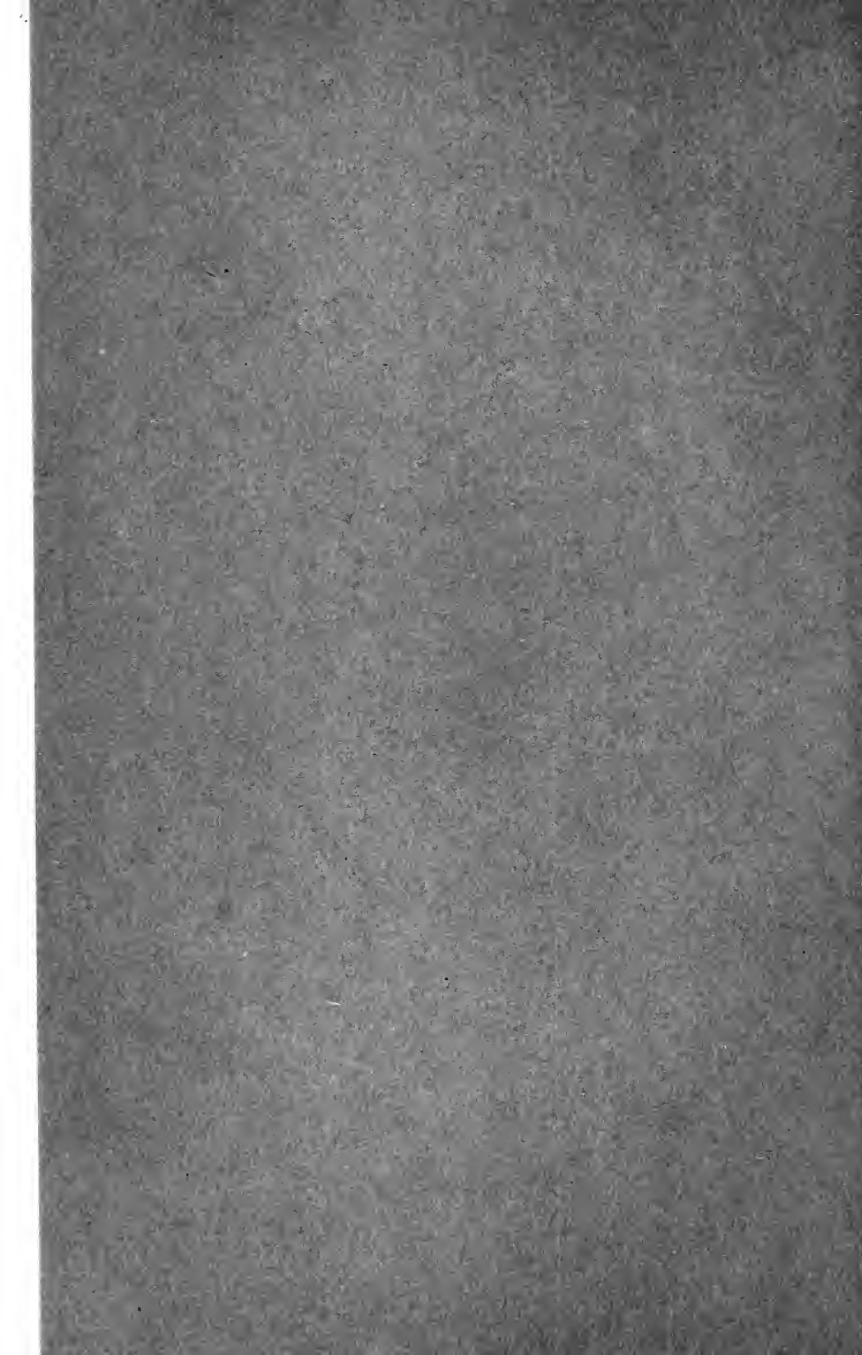




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**A  
MANUAL  
OF  
TECHNICAL  
ENGLISH**

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A  
Manual of Technical English

703  
— 1109

Supplementary Exercises  
and  
Calendar

by  
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Syracuse, N. Y.  
1919

PE III  
W57837

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## PREFACE

This little volume represents no attempt to put forth a finished textbook for a course in English composition. It is designed merely to bring together in convenient form material which the Department of English in the College of Applied Science at Syracuse University has for years found to be useful in a freshman course in technical English. It is supplementary to the regular texts of the course, furnishing course directions, additional matters of theory, and many practical exercises. It makes no claim to completeness or scholarship, but is intended simply to provide the student with a necessary working manual and guide.

J. H. W.

Syracuse University,  
January, 1919.

Mend your speech a little,  
Lest it may mar your fortunes.

—*King Lear*. I, i, 96-97.

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Speech was made to open man to man, and not to  
hide him; to promote commerce, and not betray it.

Lloyd, *State Worthies*. I, 503.

## DIRECTIONS FOR THE COURSE

ENGLISH I is a prescribed freshman course for all engineers and foresters. It consists of two hours of recitation based upon textbooks and lectures, and two hours of laboratory work (writing and correction under the instructor's supervision) each week for one year.

RECITATION. The student is expected to be prepared to recite orally, not only upon the advance assignment for the day, but also upon the work covered in the previous class period. When called upon, the student is to rise at once, stand at attention, and give the required information in a clear, firm voice, enunciating distinctly, and using concise but complete sentences. He will resume his seat only at the instructor's direction.

LABORATORY. As the laboratory period is designed primarily for the writing and correction of themes, the student is required to bring to every such period the necessary writing material. All laboratory work must be approved by the instructor before the student leaves the room.

## THEMES

KIND. The work in written composition consists of long and short themes, home themes and class themes, on topics approved by the instructor. The emphasis in engineering English is upon exposition. The best theme material will be found in the student's own experience and observation, in the lecture room and in the laboratory of his technical courses. Success in self-expression comes only through independent thinking.

CREDIT. As the student's progress in English I is determined chiefly by his ability to express himself, all assigned written work must be submitted when due. Failure to complete satisfactorily the required number of themes will insure a failure for the course. Late work is not accepted except by special permission.

The grade of the original theme is tentative and will become a permanent credit only when the correction has been approved.

All themes are filed in the English office until the end of the year, when they are destroyed. Students should keep copies of themes they wish to preserve.

**THEME PAPER.** The regulation college theme paper (8 by 10 ruled on one side) is required for all written work except business letters, for which unruled white bond paper, 8½ by 11, shall be used.

**MANUSCRIPT.** Write on one side of the paper only and use ink. Slovenliness is not tolerated, whereas neatness always enhances the value of a paper.

(a) Center the title on the first line of the first page, capitalizing the first letter of each important word.

(b) Observe an even margin on the left.

(c) Indent the first line of each paragraph about an inch.

(d) Write your name and the page number in the upper right-hand corner of each page.

(e) Do not enclose within parentheses or cross out words used in error; erase them neatly.

**THE COMPOSITION.** Keep in mind the following two basic precepts:

(a) *Prevision* or careful planning is essential to the success of any theme, for no amount of veneer can overcome structural unfitness. Make an outline.

(b) Once the plan has been fixed and the theme written in full, the best insurance is a thorough *revision* with a view to improving the diction, phrasing, and mechanical details (Sp., Cap., P., etc.).

By observing these two cautions, one may avoid the embarrassment of having a *first draft rejected*.

**SOURCES.** When writing from sources other than observation and experience, the student is required to give on the last page a full bibliography (author, title, copyright date, volume, page) of all works consulted. Quoted matter must be inclosed within quotation marks (" / "), but quoting at length is to be discouraged in student compositions. No excuse will be accepted for failure to give credit for borrowed material.

**ENDORSEMENT.** The endorsement shall be legibly written at the top of the upper side of the theme when the latter has been folded lengthwise with the creased edge at the right. The form is:

Samuel H. Martin  
English I, Section I  
December 4, 1918



CORRECTION. "*Revise*" on your paper means to rewrite on the blank back of the preceding page the correct form in full of every sentence containing an error in construction or in diction, and to state briefly but in a full sentence the reason for every change; to correct in the original manuscript all errors in punctuation or capitalization, writing on the opposite page only the reasons; and to write out on the opposite page each misspelled word ten times in its correct form. Every mark made upon the paper by the instructor has its significance; if you do not understand it, consult the instructor. Do not erase any of the critical symbols.

"*Rewrite*" means to do all that is required in "*revision*" and then to rewrite the whole theme according to the instructor's marginal suggestions. Fold the rewritten theme inside the original and return both to the instructor.

#### MODELS FOR THEME CORRECTION

The following are typical examples of the method of *revision*:

- Gr. [There was only one dwelling house and a barn in sight.] (*Was* should be *were* to agree in number with the compound subject.) There were only one dwelling house and a barn in sight.
- Ant. [Soon we see a black object under the smoke, which gradually grows larger as it approaches.] (As the antecedent of *which* is *object*, not *smoke*, *object* must be brought nearer the pronoun.) Soon we see under the smoke a black object, which gradually grows larger as it approaches.
- Coh. s. [He was unable to give an account of himself during the interval, so he was charged with the crime.] (The relative adverb *so* should not be used independently as a loose connective between clauses.) As he was unable to give an account of himself during the interval, he was charged with the crime.
- Acc. [Having once again started on our way up the river, our trials of the morning were soon forgotten . . . . (The sentence is inaccurate because the dangling participle *having started* seems to modify *trials*, whereas it should modify the unexpressed agent.) Having once again started on our way up the river, we soon forgot our trials of the morning.
- W. w. [He has been very lax in the observation of the rules.] (*Observation*, the act of watching, is improperly used for

*observance*, the act of heeding or obeying.) He has been very lax in the observance of the rules.

- P. [I mean the book, which I bought yesterday.] (No comma is required after *book*, because the relative clause introduced by *which* is restrictive.) I mean the book which I bought yesterday.

Note: Words italicized in print should be underlined in manuscript.

#### CRITICAL MARKS INTERPRETED

- Acc. Thought inaccurate (dangling modifiers, misplaced modifiers, etc.)
- Ant. Antecedent trouble. Make the pronoun reference clear.
- Cap. Capitalization faulty, 3%. Use capital, or do not, as required.
- C. I. Consult the instructor. Failure to do so reduces the theme grade 5%.
- Col. Colloquial. Use a more dignified expression.
- Cond. Too wordy. Condense.
- Conn. Connection faulty. Use a linking word or phrase.
- Coh. Coherence. The organization of the sentence (s), the paragraph (¶), or the theme (T) is seriously at fault.
- E. Emphasis false or wanting. Of the two emphatic positions, the beginning and the end, the end is usually the stronger.
- G. Good usage violated in phrase or word.
- Gr. Ungrammatical, 5%. Two errors in grammar will cause the failure of any paper.
- H. Haste and carelessness, 5%.
- Hk. Hackneyed. Be original.
- K. Awkward. Recast to overcome the clumsiness of phrase.
- O. or A. Necessary words omitted.
- P. Punctuation faulty, 3%.
- Prop. Proportion violated. Give space according to the relative importance of the ideas.
- Rep. Useless repetition. Use a synonym, or condense.
- Sp. Misspelling, 5%. Use the dictionary. Write the correct form ten times.
- Syl. Syllabication faulty. Divide the word between syllables.
- Trans. Faulty transition. Change the order of the sentence to bring the related parts closer together, or supply a sentence, clause, phrase, or word that will definitely establish the relationship.

- U. ¶ Unity of paragraph violated. Too little or too much in the paragraph. Test out the material by reference to the topic sentence.
- U. s. Unity of sentence violated. Your sentence contains more than one thought or less than one thought. 5%.
- U. T. Unity of theme violated. The theme is underdeveloped or contains irrelevant matter. See your topic statement at the beginning.
- W. w. See the dictionary.
- X. Obvious fault.
- || Cst. Put in parallel construction.
- ? Doubtful. Verify.
- F. E. Failure.
- F. R. Serious failure.

## PRIZE IN ENGLISH COMPOSITION

1. NAME. The College of Applied Science Award for Merit in English Composition.

2. DESCRIPTION. Twenty-five dollars in cash offered by an alumnus of Syracuse University for the best thesis in the Department of English.

3. SUBJECT OF THESIS. A definite technical problem of interest to engineers. Other things being equal, preference will be shown those papers which represent independent research in some special field of engineering.

4. LENGTH OF THESIS. Not less than 1,000 words nor more than 2,000.

5. FORM OF THESIS. Typewritten; pages numbered; firmly secured in note-book cover.

6. THESIS TO BE SUBMITTED ANONYMOUSLY to the English Department, May 1, accompanied by a sealed envelope enclosing the name of the contestant; both thesis and envelope to be marked by a special symbol for identification.

7. AWARD. Theses will be judged by two committees; one for content, one for expression.

8. ELIGIBILITY. The competition is open to any undergraduate (in approved standing) taking a course in English in the College of Applied Science.

9. PROSPECTIVE CONTESTANTS should NOTIFY the English Department not later than April 1 of their intention to enter the contest.

10. ANNOUNCEMENT OF AWARD. The name of the winning student will be published in the Syracuse Daily Orange about May 15 and in the University catalog of the ensuing year.

11. Contestants should typewrite theses in duplicate, as all copies submitted become the property of the English Department.

12. For further information students should consult the Department.

## SCHEDULE OF ASSIGNMENTS FOR SEMESTER II

The following schedule of assignments will be strictly adhered to in all classes. If for any reason (absence of instructor, holiday, etc.) an assignment has not been taken up at the appointed class hour, it should be *reviewed, together with the advance assignment, for the next recitation period*. Absence from class excuses no one from the requirements of the course for that class. If any one must attend class unprepared, he should notify the instructor before the recitation begins.

Written work is due at the class hour designated in the schedule and will not be accepted later except by special permission. Corrected work must be in not later than the second class period after it has been returned to the student by the instructor.

Every student should bring theme paper to the double period, preparatory to writing a class theme or doing other written exercises.

Note: M = MacCracken and Sandison's *Manual of Good English*.

A = Aydelotte's *English and Engineering*.

Week I, Feb. 3:

1. The paragraph—M. pp. 143-155; note well the examples; structure.
2. The paragraph—M. pp. 155-161, exercises 1 and 2 (as assigned); structure.
3. The paragraph—M. pp. 161-166, exercises 3 to 6 (as assigned); links.

Week II, Feb. 10:

1. The paragraph—M. pp. 167-170, make corrections in textbook; methods of paragraph development.
2. The paragraph—A. pp. 4-14 (Bennett); analyze for paragraphs.

3. Oral exposition of some process—4 pp. written out to hand in.

Week III, Feb. 17:

1. The paragraph—A. pp. 92-106 (Morison); paragraph analysis; note also sentence structure.
2. The paragraph—A. pp. 125-130 (Walker); oral exposition (4 minutes) based on content.
3. Organic structure: the long theme—A. pp. 107-124 (Johnson); outline to be indicated in margins of text.

Week IV, Feb. 24:

1. Organic structure—A. pp. 85-91 (Morison); outline to be written out to hand in.
2. Organic structure—A. pp. 251-262 (Atkinson); indicate outline in margins of text.
3. Organic structure—A. pp. 262-273 (Atkinson); oral exposition (4 min.) based on content of pp. 85-91 or pp. 251-273.

Week V, March 3:

1. Organic structure—A. pp. 197-217 (Huxley). Does Huxley in any sense apply the scientific method in the treatment of his thesis?
2. Style—A. pp. 15-27 (Harrison); note the method of adaptation to the reader. Does Harrison "put *his* ideas in clear and natural terms?" (see p. 20).
3. Words—M. pp. 1-13.

Week VI, March 10:

1. Words—M. pp. 13-28.
2. Words—M. pp. 28-43.
3. Words—M. pp. 43-53, including exercise 1 (as assigned); see dictionary.

Week VII, March 17:

1. Words—M. p. 54, exercise 2—to be written out to hand in.
2. Words—M. pp. 55-58, exercises 3, 4, 5, 6—write out 3 and 5.
3. Oral exposition of some special problem—4 pp. written out to hand in.

Week VIII, March 24:

1. Words—A. pp. 62-76 (Lounsbury); state briefly in your own words what is meant by *the standard of usage*.

—M. p. 58, exercise 8 (1).

2. Words—A pp. 283-291 (Stevenson); characterize the diction; discriminate synonyms as assigned from the text.
3. Words—A. pp. 308-318 (Carlyle); compare Carlyle's diction with Stevenson's; discriminate synonyms as assigned from the text.

Week IX, March 31:

1. Mid-semester quiz. Review all work of semester to date.
2. The sentence—A. pp. 176-196 (Newman), especially pp. 177-182; indicate in the margins of the text the kinds of sentence (simple, complex, compound, loose, periodic, balanced) in the latter pages. What is the predominant sentence type? Effective? Why?
3. The sentence—A. pp. 218-240 (Arnold); read rapidly for the main thought; compare the prevailing sentence type with that of Newman in effectiveness.

Week X, April 7:

1. The sentence—A. pp. 292-307 (Emerson); compare the prevailing sentence type with that of Newman and that of Arnold; what is its special virtue? its disadvantages?
2. Condensation—M. p. 57, exercise 7—write out to hand in. Additional exercises as assigned.
3. Condensation—Exercises as assigned—write out to hand in.

Week XI, April 14:

1. Business correspondence—M pp. 264-269; A. pp. 45-61 (Harrington), especially pp. 50-53, on the technical man and business letter writing.
2. Business correspondence—M. pp. 269-280; bring sample business letters to class for discussion. Hand in three subjects for the final long exposition; state each in a full sentence, giving a definite idea of what you expect to do.
3. (Easter vacation.)

Week XII, April 21:

1. (Easter vacation.)
2. (Easter vacation.)
3. Business correspondence—Hand in a one-page letter ordering goods (3 items); use 8 by 10 unruled bond paper 8½ by 11.  
—A. pp. 274-282 (Stevenson). What qualities of Stevenson's style should every business letter contain?

Week XIII, April 28:

1. Business correspondence—A. pp. 28-44 (Lewes). Oral exposition (4 min.)—show how certain principles laid down by Lewes may be effectively applied to the writing of business letters.
2. Business correspondence—Hand in a two-page letter concerning the sale or exchange of property, or the repair of a damaged automobile or some piece of apparatus; be explicit.
3. Business correspondence—Hand in a one-page letter of complaint concerning the non-delivery of goods, or a letter of collection; guard carefully the tone of the letter.  
—A. pp. 319-327 (Carlyle); be prepared to state orally the gist of the essay; characterize the style.

Week XIV, May 5:

1. Business correspondence—Hand in a two-page letter of application for a summer position; put yourself so far as possible in the employer's place.  
  
Technical description—Note carefully the method of the models read in class by the instructor.
2. Technical description—Be prepared to state orally the principles of technical description as illustrated in class last time.  
—A. pp. 131-139 (Mann); note the author's method of analyzing a problem, confirm-

ing rumor or personal opinion, testing results, etc. What is *the professional demand*? Cf. Johnson, A. p. 107.

3. Technical description—Hand in a two-page technical description of some simple, familiar mechanical appliance.

—A. pp. 328-334 (Carlyle); note the means of emphasis.

Week XV, May 12:

1. Review of all principles of composition—A. pp. 140-160 (Huxley); read rapidly for content; note Huxley's use of illustrations and instances.
2. Review continued—A. pp. 161-175 (Tyndall); note the citation of authorities; find instances of emphasis by repetition.
3. Review continued—A. pp. 335-357 (Ruskin); read rapidly for content; note the method of adaptation, the use of illustration and contrast; characterize the style. (Cf. Carlyle, Newman, Stevenson.)

Week XVI, May 19:

1. Final long exposition (7-8 pp.) due at class hour. Arrange for conference with instructor.
2. No class. Read outside, A. pp. 358-390 (Ruskin).  
Individual conferences (15 minutes) during the week as scheduled. Room 35.

Week XVII, May 26:

Examinations.



## II

### SPELLING

#### The Importance of Spelling

THE Department of English has no apologies to offer for devoting a part of its program to a review of Spelling. Experience has proved that many of us enter college sadly wanting in the ability to spell the common words of our daily intercourse. But what is worse, some of us approach the subject with an amazing indifference, as if spelling did not, like dress and bearing, reflect the breeding of the individual. Though punctilious to the *n*th degree in observing other conventions of the day, we here mistakenly ignore one of the most settled conventions of our time.

We are living, let us remember, in an age of standards. We buy and sell according to standard weights and measures, have a standard medium of exchange, standard postage rates, standard-gaged railroads, standard processes in science, standard requirements in education, and we live by moral standards codified into laws. We have found it expedient as a people to conform to these standards or laws, and are now seeking constantly to extend their influence. Non-conformity anywhere makes one a marked man. English orthography is no exception. Since the advent of the printing press about 1450, and especially since the publication of Dr. Samuel Johnson's dictionary in 1755, our spelling has been reduced from the chaos of Chaucer's time to a standard that, for all practical purposes, is rigidly fixed—fixed because it bears the stamp of social sanction. And here, as elsewhere, if one must offend against social custom, he must face social ostracism. It is a matter of good breeding, then, if not of expediency, to conform our spelling to the dictionary standard.

But so much might be said of any college freshman. What of the technical student? Just this: Every engineer and forester knows that every department of his profession demands the utmost accuracy. It is not a matter of whim, but of conviction. In the practice of his profession he must be infallible if ever mortal could; it is the popular claim upon him. He is judged, not by what he is, but by what he does; not by

unembodied ideas, but by the concrete application of those ideas in real constructive work, and by the expression of those ideas and the record of that work in a form of language that shall at once convince and win respect. Inaccuracy in the latter will argue inaccuracy in the former. At any rate, that is the testimony of responsible employers and of graduate practicing engineers. The want of precision in minor matters, they tell us, may betray beneath the surface a fundamental weakness of character or intellect for which no amount of veneer can compensate, a betrayal whose damning influence a lifetime sometimes cannot erase.

Slovenly manuscript and careless spelling--every teacher will bear witness--generally accompany a muddy functioning of the mind and belong to the same category of discrediting inaccuracies; whereas precision and orderliness in form generally indicate at least a determined effort to give one's best--and that attitude will lead inevitably to the clearing of the most befogged mind.

The point is that, in this day when the dictionary and other works of reference are ready at hand to every business and professional man, *each misspelling cries out your inefficiency*. You would not under any consideration deliberately insert a misspelled word into a letter of application; why, then, employ makeshift spellings anywhere? You cannot plead ignorance of the law, with books at every turn. There is no legitimate excuse. If we misspell, it is because we are content to do so.

On the other hand, a willingness to wrestle with the problem implies a readiness to seize and apply industriously all the proffered aids to good spelling.

### General Suggestions

As safeguards against error, the following general suggestions should be borne in mind:

1. Read as widely as you can, cultivating the habit of accurate observation; learn to see words correctly, so that words like *guage* (for *gauge*) look wrong.

2. In preparing your textbook assignments, read aloud so far as practicable, pronouncing each word correctly and associating the spelling with the sound. Observe that *athletics* is not pronounced *atheletics*; nor *instantaneous*, *instaneous*.

3. Wherever possible, apply the principle of analogy. Though this is not always a safe guide, it is frequently a convenient help in the spelling of derivative words containing parts identical in sound to those of some other word. Compare, for instance, *inference*, *deference*, *conference*; *definite*, *infinite*; *inferable*, *transferable*.

4. So far as possible, profit by your knowledge of the derivation of the word. Compare *emigrant* (L. *e*, from, + *migro*, move), *immigrant* (*in*, into, + *migro*); *describe* (L. *de*, fully, + *scribo*, write); *discredit* (L. *dis*, not, + *credo*, believe).

5. Consult the dictionary freely. Never cheat yourself by substituting a poorer word for one you cannot spell.

6. Keep a list of all words you misspell. If you do this consistently, you will be disillusioned; you will probably find that you are misspelling not a great many words, but a few words a great many times. Once you have discovered this, your task is the simple one of mastering these few troublesome words.

### Special Rules

Besides adopting these general preventives, we may put to a very practical purpose four specific rules. These should be memorized and intelligently applied.

I. Final silent *e* preceded by a consonant is usually retained before a suffix beginning with a consonant. Example: *measure* + *ment* = *measurement*; *waste* + *ful* = *wasteful*. Exceptions: *judgment*, *acknowledgment*, *abridgment*, *lodgment*.

II. Final silent *e* is usually dropped before a suffix beginning with a vowel, except in the endings *ce* and *ge*, which retain the *e* before a suffix beginning with *a* or *o*. Example: *sale* + *able* = *salable*; *wire* + *ing* = *wiring*; *service* + *able* = *serviceable*; *advantage* + *ous* = *advantageous*.

III. Monosyllables and other words accented on the last syllable, ending in a single consonant preceded by a single vowel or by a vowel preceded by *qu*, double the final consonant on taking a suffix beginning with a vowel. Example: *plan* + *ed* = *planned*; *infer* + *ed* = *inferred*; *omit* + *ing* = *omitting*; *quit* + *ing* = *quitting*; but *traveling* (note accent), *repeated* (two vowels).

IV. In the digraph *ei* or *ie*, *e* follows *i*, except after *c* or when the digraph is pronounced with an *a* sound as in *eight*. Examples: *ceiling*, *chief*, *receive*, *relieve*, *weight*. Exceptions: *either*, *leisure*, *counterfeit*, *forfeit*, *surfeit*, *foreign*, *sovereign*, *seize*, *weird*, *heifer*, *sleight*, *height*. You can fix this rule by remembering *Alice* and *Celia*, in which *e* follows *c*, and *i* follows *l* (or any other letter).

These four rules will meet our most common needs in our attempt to eliminate bad spelling. It is also convenient to remember that final *y* preceded by a consonant usually becomes *i* before a suffix not beginning with *i* (*dictionary* + *es* = *dictionaries*; *lonely* + *ness* = *loneliness*; but *fly* + *ing* = *flying*, *obey* + *ed* = *obeyed*); that *exceed*, *proceed*, and *succeed* are the only words ending in *-ceed*, and *supersede* the only one in *-sede*; that generally, of two forms of the same word, the simpler is to be preferred (*catalog*, not *catalogue*; *program*, not *programme*; *flavor*, not *flavour*, used in England); that the dictionary is the court of last resort, and that of two forms in the dictionary the first is usually the common or preferred one.

NOTE.—For further rules on spelling, see MacCracken and Sandison's "Manual of Good English," pp. 231-233, 240, 243-246; the introductions to the New Standard Dictionary (1913, Funk & Wagnalls) and Webster's New International Dictionary (1909, G. & C. Merriam); and the United States Government Style Book (Government Printing Office, Washington).

## WORDS FREQUENTLY MISSPELLED IN ENGLISH I

No student will be given a passing grade in English I until he has attained a grade of 90 in an examination on the following list:

### A

abbreviate  
absorption  
abundance  
accept (*receive*), except (*omit*)  
abutting  
accelerating  
accessibility  
accessories  
accidentally  
accommodation  
accomplish  
accumulate  
accurately  
achievement  
acknowledgment  
acquaintance  
acquiring  
across  
adequately  
adherence  
adjacent  
adjustable  
admissible  
advantageous  
advertise  
affect (*change*), effect (*accomplish*)  
advise (v), advice (n)  
alcohol  
alinement, *or* alignment  
all right (never *alright*)  
almost  
already  
altogether  
alter (*change*)

amateur  
ammeter  
among  
analysis, analyses (pl.)  
analyze  
arctic  
apparatus  
appearance  
appreciate  
approximately  
armature  
arrangement  
assistance  
association  
athletics  
attendance  
audible  
auxiliary

### B

balance  
beginning  
believe  
benefited  
besieging  
bituminous  
boundary  
Britain  
bulletin  
buoyant  
business

### C

calcimine  
calendar  
calibration

cancelation  
 canvas (*cloth*)  
 canvass (*review*)  
 capital (adjective)  
 capitol (noun)  
 carbureter  
 casualty  
 catalog  
 ceiling  
 cemetery  
 censor (*examine*), censure (*blame*)  
 changeable  
 chauffeur  
 chief  
 choose (present tense)  
 clothes (*garments*)  
 cite (*tell*), site (*location*), sight  
     (*vision*)  
 coarse (adj.)  
 column  
 combustible  
 comma  
 committee  
 commutator  
 comparative  
 competent  
 complement (*completes*)  
 compliment (*commends*)  
 comprehensible  
 compromise  
 concede  
 conferred  
 conference  
 conscientious  
 consistent  
 consul  
 contagious  
 convenience  
 convertible  
 correspondence  
 council (*advisory body*)

counsel (*advice*)  
 countenance  
 courtesy  
 credible  
 criticism  
 criticize  
 current (*stream*)  
 currant (*fruit*)  
 curriculum  
 custom  
 cylinder

## D

datum, data (pl.)  
 deceive  
 decent (*proper*)  
 deficient  
 definite  
 delegate  
 dependent (noun and adj.)  
 descent (noun, *down*)  
 descendant (noun)  
 describe  
 destroy  
 development  
 device (n), devise (v)  
 difference  
 dilapidated  
 dining  
 disappoint  
 discouragement  
 disease  
 distribute  
 divisible  
 dormitory

## E

eighth (ordinal)  
 eligible  
 eliminate  
 elliptical  
 emanate  
 embarrass

emigrant (*—from*), immigrant  
(*—into*)

eminent  
encyclopedia  
endeavor  
enterprise  
equipped  
exaggerate  
excellence  
excessive  
exemplary  
exercise  
exhaust  
existence  
exorbitant  
experience  
experiment  
explanation  
extraordinary  
extravagant

## F

faculty  
familiar  
February  
fiery  
forcible  
foreigner  
forfeiture  
formally (*with due form*)  
formerly (*previously*)  
forty  
fourteen  
franchise  
freshman (adj.)  
fulfill, or fulfil

## G

gage, or gauge  
government  
grammar  
grievance

guardian  
gymnasium

## H

height  
hemisphere  
hindrance  
homogeneous  
hygienic  
hypotenuse

## I

identical  
illegible  
imaginary  
imitation  
immediately  
imminent  
incidentally  
indefensible  
indelible  
indestructible  
indispensable  
infallible  
infinite  
inference  
inferred  
ingenious (*clever*)  
ingenuous (*frank*)  
inhabitants  
instantaneous  
intelligible  
interfered  
invitation  
iridescent  
irregular  
irrelevant  
irreparable  
irresistible  
irresponsible  
irrigation  
its (possessive)

## J

judgment

## K

knowledge

## L

laboratory

later, latter

lavatory

lead (n. and pres. tense v.)

led (past t. v.)

leisure

library

lightening (participle)

lightning (*electricity*)

literature

locomotive

loose (adj.)

lose (verb)

lubricator

## M

maintenance

malleable

management

manufacturer

merchandise

messenger

metallurgy

mimicking

miniature

missent

misspell

muscular

## N

naphtha

navigable

necessary

neighbor

ninety

noticeable

## O

occasionally

occurrence

omission

operating

opportunity

originating

ostensible

## P

parallel

paraphernalia

parliamentary

particular

partner

patronize

passable

peaceable

perceptible

performance

perhaps

permanent

permissible

perseverance

persuade

pervade

phenomenon (singular)

phenomena (plural)

phosphorus (noun)

planned

plausible

possession

potential

precede

predecessor

preference

preferred

prejudice

preliminary

preparation

prevalent

principal (*chief*)



principle (*rule*)  
privilege  
probably  
procedure  
proceed  
professional  
profitable  
pronunciation  
propagate  
propeller  
prophecy (noun)  
prophesy (verb)  
pursue

### Q

quiet (*still*)  
quite (*entirely*)

### R

receive  
receipt  
recognize  
recommend  
recompense  
reference  
regretted  
relieve  
remittance  
reparation  
repetition  
reservoir  
resilience  
resistance  
restaurant  
ridiculous  
riveted  
rotary

### S

sacrifice  
safety  
salary  
schedule

seize  
separate  
serviceable  
shoeing  
shone (p. p. *shine*)  
sieve  
significance  
similar  
sophomore  
specimen  
spherical  
stationary (adj.)  
stationery (noun)  
succeed  
sufficient  
suffrage  
superintendent  
supersede  
supervisor  
surprise  
susceptible  
syllable  
symmetry  
synonym  
systematic

### T

tangible  
temperament  
than (conj.; not *then*)  
their (possessive)  
together  
traceable  
transferable  
Tuesday  
typical

### U

unanimous  
unconsciously  
until (but *till*)  
usually

vacancy  
vaccination  
vegetable  
vehement  
vertical  
vice versa  
victuals  
village

weather  
Wednesday  
whether  
wield  
wrap (*cover*)  
writer  
writing

For your own satisfaction, record here all words incorrectly spelled in your themes, and review them daily until you have mastered them.

Correct Form of Word	Pronunciation	Meaning

**Correct Form of Word**

**Pronunciation**

**Meaning**

**Correct Form of Word**

**Pronunciation**

**Meaning**

**Correct Form of Word**

**Pronunciation**

**Meaning**

**Correct Form of Word**

**Pronunciation**

**Meaning**



### III

## PUNCTUATION

PUNCTUATION is a means to clearness. Unless clearness demands the presence of punctuation marks, none should be inserted. Just as useless words tend to obscure the thought of the sentence, so useless marks tend to defeat the first and only purpose of punctuation—clearness.

Punctuation accomplishes this purpose by separating, by different degrees of separation, various elements of thought which function as distinct units however they may be related to other similar units. Naturally, then, the use of unnecessary marks is as destructive of clearness as is the omission of marks required, for either practice brings the various thought units into illogical relationship.

As a general rule, when the presence or omission of punctuation fails to affect the interpretation of the thought, by all means dispense with it as a convenient but useless tool. Remember that the twentieth century capitalizes speed and economy as prerequisites to efficiency. Instead of the long, lumbering, elaborately punctuated sentences of the last century, we have to-day the short, snappy, businesslike sentence which gets results, and gets them quickly. The tendency toward shorter and less involved sentences has led to a reduction of punctuation marks. The fewer the units within the sentence, the less of course the need of separative marks.

Let us observe further that, whereas in early practice the abundant and more or less indiscriminate (if not unintelligent) use of punctuation served to lessen or destroy the value of the individual marks, to-day the decrease in number of marks serves to increase the value of each mark we use. Every mark has its special significance. It is only when we realize this, that we come to punctuate intelligently.

In practice, punctuation is not nearly so difficult as some would have it appear. Many of our textbooks make mountains out of molehills in this matter and frighten us off before we have ever made an earnest effort to do the thing. Think of 101 pages of rules! Yet that is what one author hands us as our lesson in punctuation! Is it any wonder that some of us throw



up our hands in despair? But punctuators are not made in that way. No number of rules will insure effective punctuation unless the writer uses his own common sense. The man who habitually mispunctuates belongs to the same class as those who substitute poorer words for those they cannot spell, or who attempt to "doctor up" organically bad sentences by means of punctuation marks rather than set themselves the task of reconstructing. He fails through indolence alone; he refuses to think. But if he comes to the problem of punctuation with a clear knowledge of the sentence and the relationship of its elements and with a willingness to apply that knowledge to the sentence in hand—he finds it easy of solution.

The 101 page of rules then resolve themselves into less than a dozen general principles. Though there will always be exceptions to rules, the thoughtful application of these general principles will enable us to meet each case as it arises.

College men are ordinarily little concerned with periods (.), exclamation points (!), interrogation points (?), dashes (—), quotation marks (" "), etc. They use these with a degree of certainty. Their real problem lies within the sentence—in the use of the comma (,), the semicolon (;), and the colon (:), but especially the comma.

### **The Rule of the Foot-Rule**

When all three of the latter marks are required in one sentence, we may usually apply the "rule of the foot-rule," which makes punctuation merely a matter of mensuration. For example:

I shall discuss three ways of making oxygen: first, by electrolysis of water; second, by the decomposition of potassium chlorate; and thirdly, by the decomposition of mercuric oxide.

Here the comma registers the slightest pause, that setting off the parenthetic enumerating adverb; the semicolon, the next greater pause, that separating the members of the series which already contain commas; and the colon, the greatest pause, that separating the general statement from the specific statement of the series already containing semicolons. One sees at once the analogy to the foot-rule, in which a short perpendicular marks off the eighth-inch, a longer perpendicular the quarter-inch, and a yet longer the half-inch.

If but two distinct marks are required, chance favors the comma and the semicolon. One may usually prove such a case

by reasoning up from the comma to the semicolon, or if three degrees of separation, to the colon.

### The Comma

In the use of the comma we have but to keep in mind four general principles:

I. Use the comma to indicate the omission, in the midst of the sentence, of a word or words required by the syntax but implied by the context, as in the omission of a verb or of conjunctions in a series.

Examples: (1) He was furious; she, calm. (The verb *was* is understood.)

(2) As an aid to memory, write the thing down and speak it aloud so as to receive sensations from it through the hand, the eye, the mouth, and the ear. (Note that the presence of *and* between the last two members of a series has no effect upon the punctuation between those members.)

II. Use a comma or commas to separate a non-restrictive modifier (participial phrase; relative, result, temporal, concessive, or causal clause) from its antecedent and the rest of the sentence.

Examples: (1) The woman, struggling on in the teeth of the storm, did not hear the approaching car.

(2) Crouse College, which stands high above the city, commands an excellent view of the valley.

(3) They are almost worn out with their long hours in the mill, so that when night comes they have little interest in anything but rest.

(4) My father's death occurred in 1885, when I was but a lad.

(5) I failed in senior English, though I worked faithfully the whole year.

(6) I told him that I would not accept his proposition, as I did not care to do business with such a man.

III. Use a comma or commas to set off from the rest of the sentence all words, phrases, and clauses out of their normal order, as in some parenthetical constructions and introductory elements.

Examples: (1) Narration, appealing as it does to the imagination and the feelings, and dealing as it does with events, must move more rapidly than exposition and argument.

(2) A month later, when you have come to like her immensely, you will describe her in terms far more agreeable.

(3) My father, although he worked hard all his days, seemed never to accumulate any means.

(4) Knowing what the actors are, the reader is quicker to comprehend what they do.

IV. Use a comma or commas to set off from the rest of the sentence all elements parenthetical in thought or in construction, as the nominative absolute, non-restrictive modifiers, appositive elements, adverbial connectives, words in direct address, etc.

Examples: (1) The material gathered, the next step is to organize it.

(2) The specifications were drawn by Burton, who was supposed to be an expert. (Cf. II (2)).

(3) Shakespeare, the greatest dramatist of all times, was the gift of England.

(4) They dare not, on the other hand, deny me the right to present my version of the matter. (Cf. III.)

(5) Mr. Chairman, I rise to a point of order.

NOTE: A comparison of the examples given shows that it is impossible to draw a hard and fast line between the rules as they affect certain instances, especially in the case of parenthetical and non-restrictive elements.

Finally, the one rule to which there is no exception is—*punctuate only for clearness*.

### The Hyphen

As a rule the use of the hyphen (-) may be determined by four tests: (1) rapidity of pronunciation, (2) the accent, (3) the sense, (4) the construction.

Examples, tests (1) and (2): spoken slowly, a *rail'' fence'* (the noun attracts the stress); more rapidly, *rail'-i'-ron* (the two words stressed almost equally); most rapidly, *rail'road''* (first component stressed).

Examples, test (3): Can the two components be construed separately with any other word? In a *gray-green cloth*, *green* modifies *cloth*, but *gray* can modify only *green*; the two adjectives are not in series; hence the hyphen. In *time-worn custom*, *time* modifies *worn* and cannot be construed separately with *custom*. In *I saw the cave-in*, neither *cave* nor *in* can be construed separately with any other word.

Examples, test (4): Observe that usually the components bear an unidiomatic relation to one another. *Gray*, adjective, modifies *green*, adjective; *time*, noun, modifies *worn*, participle. Compare *news-letter*, *fish-culturist*, *old-fashioned*, *cold-blooded*, *honey-sweet*, *ice-cold*, *worm-eaten*, *hair-splitting*, etc.

## Capitalization

GENERAL RULE. Capitalize the initial letter of all proper nouns and adjectives, the first word of a sentence and of a direct quotation, the important words of titles, and the abbreviations of titles.

Observe that a title preceding a proper name is always capitalized, but modern journalistic practice favors the lower case where the title follows the proper name. Example: *Professor C. E. Adams*, but *Dr. C. E. Adams, professor of English*.

As in the use of the comma, the present tendency is to reduce the number of hyphens and of capitals.

## EXERCISES IN PUNCTUATION

First read the sentence through carefully for its meaning, then insert such punctuation marks as clearness demands, and state briefly but in full sentences the reasons for all marks used.

1. The Saxons and Angles when they entered Britain were brought into contact with a Celtic-speaking population.

2. But in general the Saxon words are simple homely and substantial fitted for everyday events and natural feelings while the French and Latin words are elegant dignified and artificial fitted for the pomp of rhetoric the subtlety of disputation or the courtly reserve of diplomacy.

3. The wrongs against which we now array ourselves are not common wrongs they cry out to the very roots of human life.

4. On the other hand British troops have already attacked the German harbor of Dar-es-Salaam where they have destroyed the wireless telegraph station.

5. A prize may be brought into the territory when it is incapable of navigating or cannot keep the sea or is short of fuel or of food stores.

6. If a sentence has a compound subject mention the substantives that compose it if the sentence has a compound predicate mention the verbs.

7. Consequently one often notes in the older English classics methods of expression which though formerly correct are ungrammatical now.

8. Success in sentence making requires the endeavor to do three things first to make the sentence clear in itself second to make it strong in relation to its neighbors in the paragraph and third to give variety of cadence to the series of sentences making up the paragraph.

9. In brief it seems to me that the present state of physical and physiological knowledge warrants the assumption the working hypothesis that life is a form of energy different from those considered in the domain of physics and chemistry.

10. These were manufactured for military purposes and judging from the way they were packed came from the Servian arsenal at Kragujewac.

11. Good style is not a necessary result of grammatical correctness but without such correctness it is of course impossible.

12. On the other hand when every possible means is taken to prevent cheating and when it is punished by expulsion there is usually an undergraduate sentiment which puts the cribber in his proper place.

13. The Austro-Hungarian government after evading every conciliatory intervention of the Powers in its conflict with Servia proceeded to mobilize officially declared war on Servia and the following day bombarded Servia.

14. Seated on her accustomed chair with her usual air of apathy and want of interest in what surrounded her she seemed now and then mechanically to resume the motion of twirling her spindle.

15. That the child should resemble both father and mother is thus made intelligible for it is a part of both.

16. The official documents dealing with the causes of the European war are as follows the British White Papers containing 160 documents the German White Paper containing about 28 parts the Russian Orange Paper containing 79 documents the Belgian Gray Paper containing 79 documents.

17. The English as spoken by the common people of Ireland has a multitude of peculiarities both of sound and of idiom many of them borrowed from the Gaelic which was once the language of the whole island.

18. There are eight parts of speech nouns pronouns adjectives verbs adverbs prepositions conjunctions and interjections.

19. The Government awaited not only the terms of the ultimatum but the violation of her territory by German troops before appealing to France and to England guarantors of her neutrality by the same title as Germany and Austria-Hungary to co-operate in the name and by virtue of the treaties in the defense of Belgian territory.

20. If the working hypothesis fails in any essential particular he is ready to modify or discard it.

21. To express our thoughts fully freely and accurately we must use words that is signs made with the voice.

22. Such voice-signs have had meanings associated with them by custom or tradition so that their sense is at once understood by all. Their advantage is twofold they are far more numerous and varied than other signs and the meanings attached to them are much more definite than those of nods and gestures.

23. Belgium has fulfilled all her international obligations she has accomplished her duties in a spirit of loyal impartiality she has neglected no effort in order to maintain and to make respected her neutrality.

24. It like the other forms of energy requires a material vehicle through which to act but the results produced by it are vastly more complex.

25. The poorest school has given the pupils some insight into methods of reenforcing a very slender outfit of knowledge by the use of textbooks the good school has taught the dictionary habit and the dictionary is the key to daily self-instruction by the newspaper and cheap book.

26. The battle sir is not to the strong alone it is to the vigilant the active the brave.

27. But now by the improvements in machinery the Atlantic has shrunk to a lake and before long will shrink to a river.

28. Surface waters include those of swamps brooks rivers and lakes all of which differ greatly in regard to their characteristics. Swamp water is liable to be heavily charged with vegetable matter but the flow in brooks and rivers causes a continuous improvement in quality and when a lake is reached the purest surface water is found. This improvement in quality is effected in two ways first by settling or sedimentation which removes the suspended matter and second by aeration or contact with the air by which oxygen is supplied to decompose and destroy both the suspended and the dissoluble organic matter.

29. The States previous to the adoption of the Constitution were as separate and distinct political bodies as the governments which represent them.

30. The right to vote implies the duty to vote right the right to legislate the duty to legislate justly the right to judge about

foreign policy the duty to fight if necessary the right to come to college the duty to carry oneself handsomely at college.

31. Men do not lose their self-respect they win it they do not drop out they work in.

32. The water of a lake may be polluted however by the refuse of towns or by the discharge of sewers into it so that the contamination may extend to a considerable distance from the shores.

33. In small lakes and ponds the liability to pollution is greater still hence filter galleries are frequently used to secure purification.

34. Since language is the expression of thought the rules of grammar agree in the main with the laws of thought. In other words grammar is usually logical that is its rules accord in general with the principles of logic which is the science of exact reasoning.

35. The State of Maryland which has been founded by men of rank was the first to proclaim universal suffrage and to introduce the most democratic forms into the conduct of its government.

36. The spirit of 1776 as it speaks to us from the Declaration of Independence and the glowing periods of Patrick Henry was largely a revolutionary spirit revolutionary in its faith in abstract principles revolutionary also in its determination to carry through a tremendous political change.

37. Prose on the other hand is unmetrical its rhythm is not fixed.

38. Thus debate has a constant twofold value it informs the audience in the liveliest possible way on matters in which they are concerned and it develops in speakers a habit of clear and thorough thinking careful investigation and forcible presentation.

39. The man who acted as guide pointed out the Capitol which stands at the head of the avenue.

40. The Nevada Fall is in every respect one of the grandest waterfalls in the world whether we consider its vertical height the purity and volume of the water which forms it or the stupendous scenery by which it is environed.

41. In the Governments opinion as expressed in its bill of complaint against the Steel Corporation ore holdings and freight

rates do not constitute all of the Corporations offense in restraint of trade.

42. In compiling this material the author had occasion to use the following sources The Outlook February 21 1909 The Review of Reviews April 1910 Colliers Weekly June 7 1910 Everybodys Magazine October 1911.

43. Judged thus these papers are distinctive for at least two qualities first vast enterprise in the collection and display of all news important and unimportant and second regard for the tastes and the standards moral and intellectual of those in the community whose tastes are least exacting and whose standards are least developed.

44. They regard that influence as distinctly calamitous in the life of the Church and with the highest regard for the peasant-Pope who is devoutly religious ardently concerned for the purity of the Church and a saint in his life they recall with regret the large-minded statesmanship of Leo XIII.

45. In American football a development of the Rugby game one side is allowed undisputed possession of the ball at the moment when it is put into play.

46. All this is certain because rocks of crustaceous or still later date have shared in the elevatory movements which gave rise to these mountain chains and may be found perched up in some cases many thousand feet high upon their flanks.

47. The reviser in making his selection is guided broadly speaking by utility that is he aims to include the terms most likely to be looked for by the consulter of the dictionary.

48. Anarchy and confusion poverty and distress desolation and ruin are the consequences of civil war.

49. Now the use of culture is that it helps us by means of its spiritual standard of perfection to regard wealth as but machinery and not only to say as a matter of words that we regard wealth as but machinery but really to perceive and feel that it is so. If it were not for this purging effect wrought upon our minds by culture the whole world the future as well as the present would inevitably belong to the Philistines. The people who believe most that our greatness and welfare are proved by our being very rich and who most give their lives and thoughts to becoming rich are just the very people whom we call Philistines. Culture says "Consider these people then their way



of life their habits their manners the very tones of their voices look at them attentively observe the literature they read the things which give them pleasure the words which come forth out of their mouths the thoughts which make the furniture of their minds would any amount of wealth be worth having with the condition that one was to become just like these people by having it?" And thus culture begets a dissatisfaction which is of the highest possible value in stemming the common tide of mens thoughts in a wealthy and industrial community and which saves the future as one may hope from being vulgarized even if it cannot save the present.

—Arnold, *Sweetness and Light*.

## IV

### ACCURACY

**A**CCURACY is one of the cardinal principles of scientific work. In mathematics, in physics, in chemistry—in all the sciences, each formula must be memorized to the letter and each theory applied with absolute precision. The engineer is either right or wrong—there is no middle ground,—and if wrong, he is brought to strict account. For when a decimal point has been misplaced and a great bridge falls, it is not the engineer alone who pays, but the whole community. Indeed, in the complex life of modern society, scientific accuracy is the one great guarantee of reasonable human safety.

But the engineer's accuracy does not end with the estimating of stresses and the testing of materials; it applies with equal insistence to his specifications, his orders, and his reports. His language, too, must be accurate. Technical writing must be every time a faithful record of things as they are or are to be. It must be indisputably clear—there must be an unquestionable singleness of meaning and a convincing directness and force. In other words, the English of technical transactions, if legal complications or disaster is not to accompany their execution, must be absolutely foolproof.

If the logically conceived, accurately expressed sentence insures immediate understanding, prompt action, economy of material resources and human effort, it has an undeniable claim upon our attention. We cannot be content to "somehow muddle through." We must set ourselves to revising. Greater men than we have not scorned the task. "I have as much difficulty as ever in expressing myself clearly and concisely," says Darwin in his *Autobiography*. "and this difficulty has caused me a very great loss of time; but it has had the compensating advantage of forcing me to think long and intently about every sentence, and thus I have been led to see errors in reasoning and in my own observations or those of others." Huxley, too, had our experience. "It constantly becomes more and more difficult," says one of his letters, "for me to finish things satisfactorily." "The fact is," he says at another time, "that I have a great love and a great respect for my native tongue and take great pains to use it

properly. Sometimes I write essays half a dozen times before I can get them into proper shape, and I believe I become more fastidious as I grow older." "Macaulay," says Trevelyan, his biographer, "never allowed a sentence to pass muster until it was as good as he could make it." It is this fine impatience of results that must redeem the technical student from his pitfalls of self-expression.

All this means that if one is to write and speak effectively, he must in the end become his own critic. He must familiarize himself with all the aids to good English and apply them consistently to all his work. The best corrective to inaccuracy of the sentence is an examination of its common causes and a thorough drill in the method of eliminating them. Such is the purpose of the following cautions and exercises.

### ACCURACY CAUTIONS

I. Do not violate the law of grammatical agreement. [Gr.]  
(1) A verb must agree with its subject in person and number.  
(2) A pronoun must agree with its antecedent in person, gender and number.

Examples: (1) *Ungrammatical*: The number of transits in this department are too small to meet the demand. *Correct*: The number of transits is too small . . . .

(2) *Ungrammatical*: Every one of the books had been removed from their accustomed place. *Correct*: Every one of the books [*or every book*] had been removed from its accustomed place.

II. Do not omit or obscure the antecedent of a pronoun. [Ant.]

Examples: (1) *Confusing*: There is a large veranda across the front of the house, which is supported by four pillars. *Clear*: Across the front of the house is a large veranda, which is supported by four pillars.

(2) *Bad*: These gases attack the steel work of the shed, which makes frequent painting necessary. [*Which* has no substantive antecedent.] *Better*: These gases attack the steel work of the shed, necessitating frequent painting. *Or*: As these gases attack the steel work . . . , frequent painting is necessary.

(3) *Confusing*: After my aunt had spoken to her, I slipped my hand into hers and told her how sorry I was. *Clear*: After my aunt had spoken to her, I slipped my hand into Mary's and told her how sorry I was.

(4) *Bad*: I went duck-shooting yesterday and bagged six of them. *Correct*: I went duck-shooting yesterday and bagged six ducks.

III. Avoid dangling modifiers. The commonest offenders are (1) the dangling participle and (2) the dangling gerund (verbal noun). [D. M.]

(1) *Bad*: Having completed the design, it has to be put on paper. [The agent is not expressed.] *Correct*: Having completed the design, we must next put it on paper. *Or*: After the design has been completed, it has to be put on paper.

(2) *Bad*: By opening this valve the over-flow may be let off. [The agent of the gerund is not expressed.] *Correct*: By opening this valve, one may let off the over-flow.

IV. Do not misplace modifiers. [M. M.] Keep them near the parts modified.

(1) *Misleading*: Having no brothers or sisters, I was forced to play during my mother's absence in the streets. *Clear*: Having no brothers or sisters, I was forced, during my mother's absence, to play in the streets.

(2) *Ambiguous*: As the current is turned on gradually the machinery begins to move. [A "squinting" construction. Which way does *gradually* really look?] *Clear*: As the current is gradually turned on, the machinery begins to move. *Or*: As the current is turned on, the machinery gradually begins to move.

(3) *Impossible*: I visited the place where my father was born for the first time last year. *Correct*: Last year I visited for the first time the place where my father was born.

(4) *Ambiguous*: I saw him from the window of a car this morning going down Salina Street. [What are the three possible meanings?]

(5) *Ambiguous*: I only read the book. [What are the three possible meanings?]

See also II (1).

V. Do not omit necessary words. [O or A]

(1) *Incorrect*: I have and still do write a little for the magazines. *Correct*: I have written and still write a little for the magazines.

(2) *Obscure*: So-called popular magazines are read more by the uneducated than the literary. *Clear*: So-called popular magazine are read more by the uneducated than are the literary [magazines]. *Or*: So-called popular magazines are read more by the uneducated than by the literary [reader].

(3) *Wrong*: Every student is expected to put his theme in these covers. *Right*: Every student is expected to put his theme in one of these covers.

(4) *Misleading*: While returning from his work through the forest a large black bear crossed his path. [Elliptical clause. Cf. III.] *Clear*: While he was returning from his work through the forest, a large black bear crossed his path.

(5) *Impossible*: When six years old [or at the age of six] my father took me to visit my grandparents. [Elliptical clause.] *Correct*: When I was six years old, my father took me to visit my grandparents. *Or*: At the age of six, I was taken by my father to visit my grandparents.

VI. Avoid false and incomplete comparisons. [F. C.]

(1) *False*: In those days the value of the classics was considered to be far greater than sciences. *Correct*: In those days the value of the classics was considered to be far greater than that of the sciences.

(2) *Incorrect*: I like this most of any of my subjects. [Cf. VIII.] *Correct*: Of all my subjects, I like this best. *Or*: I like this better than any of my other subjects. [Cf. V.]

(3) *Incomplete*: Although I had considered several courses, I finally selected chemical engineering as offering better opportunities. *Complete*: Although I had considered several courses, I finally selected chemical engineering as offering better opportunities than any other course. [Cf. V.]

VII. Do not fail to put parallel ideas into parallel construction. [||Cst.] Avoid false co-ordination and violent change of construction generally.

(1) *Wrong*: You have to use the words which best express the thought and the clearest to the reader. [False co-ordination.] *Correct*: You have to use the words which best express your thought and which are clearest to the reader.

(2) *Wrong*: It was a particularly trying experience, and which cost me much peace of mind afterward. *Correct*: It was a particularly trying experience, one which cost me much peace of mind afterward.

(3) *Wrong*: You may either write a long theme on your work during last summer or that of the first term in college. *Correct*: You may write a long theme on either your work during last summer or that during the first term in college.

(4) *Wrong*: I have not only failed in mathematics but in

English also. *Correct*: I have failed not only in mathematics but also in English.

VIII. Do not use the wrong word. [W. W.] Consult the dictionary.

(1) *Incorrect*: The waiting-room, which *lays* along the front of the *depot*, was filled with people. *Correct*: The waiting-room, which *lies* along the front of the *station*, was filled with people.

(2) *Incorrect*: By careful *observance* in the classroom, prospective teachers may gather much valuable information. *Correct*: By careful *observation* in the classroom, prospective teachers may gather much valuable information.

(3) *Incorrect*: A table stands before *both* windows. *Correct*: A table stands before *each* window. [There are two tables.]

IX. Do not neglect the comma. [P.] Punctuation marks, in themselves, have no thought value, but they are often essential to the correct interpretation of the thought. Especially is the comma necessary to distinguish the non-restrictive from the restrictive modifier. [See the rules on PUNCTUATION.]

Contrast: (1) The bridge which collapsed was of the cantilever type. (2) The bridge, which collapsed, was of the cantilever type.

NOTE:—Never attempt to correct an organically bad sentence by merely inserting punctuation marks. Recast the sentence.

#### EXERCISES IN ACCURACY OF THE SENTENCE

Read the sentence through carefully to ascertain the author's intended meaning and emphasis, state specifically the nature of the inaccuracy, and write the correct form of the sentence.

1. A month ago I wrote you for information on the advice of a friend regarding the manufacture of a patented device.

2. The enclosed catalog contains all our screens of stock sizes.

3. We can let you have these goods for \$102.75 delivered to you at your nearest shipping station.

4. A tracer has been sent out whom we hope will locate the goods lost within a few days.

5. I should like very much if you would send an estimate of the cost.

6. Oxford University was thus founded by the English students at Paris.

7. In the west wall are two windows about equally spaced.

8. Entering the bedroom through the door at the right, a large window appears immediately in front.

9. On the opposite wall are two windows in the middle of which is a door.

10 Are the doors to be of pine or oak, and do you wish all the doors and windows the same?

11. We are glad to send you a catalog showing our products which you will find enclosed.

12. My stay of six years with this company and foreman of it for three years argues that I have given satisfaction.

13. For the past four years I have been connected with a large manufacturing plant in the capacity of testing and cost distribution work.

14. A chandelier hangs from the ceiling in the center, to which is connected by means of a wire an electric study lamp on the table.

15. The bookcase is set up against the wall between the two windows, being the lightest spot in the room which is best adapted for study.

16. Directly upon entering the room, a large table attracts the attention near the center.

17. The crucible or hearth is the bottom section [of the blast furnace], and from this is drawn the molten iron and waste materials.

18. The large railroad and lumber companies employ at least one forester to look after their wooded tracts.

19- His working while at college not only makes possible his education, but he grows in independence by being thrust upon his own responsibility.

20. Again and again in his travels he found himself contrasting the social and political ideals of the different countries to the United States.

21. The man or woman who gives patient attention to the details of their work, whatever it be, is bound to meet with some degree of success.

22. Some desert plants contain enough water to supply men and animals with drink when they are cut open.

23. His success not only consisted in his attaining the highest office in the land, but he was also loved as a fearless champion of the rights of the laboring classes.

24. Like his superintendent, his salary was considerably increased with the expansion of the business.

25. Athletics naturally tend to develop a man's body physically, which carries along with it mental development.

26. The word *university* not only included the students and the professors, but every employee regardless of the capacity in which they served.

27. Handsome seawalls, promenades, bathing beaches, and many other recreations go to make those parks famous throughout the country.

28. From there I went with the B—— Metal Working Company where I received a larger salary and it also brought me nearer home.

29. St. Mark's was also described externally and internally, illustrating the methods of selecting different points of view to describe different objects in relation to each other.

30. An indoor track team consists of any number of men from two to twenty. It consists of pole vaulting, running, high jumping, putting the shot, etc.

31. The essence of each article is somewhat similar to the others.

32. All these facts duly emphasize the importance of the situation of the tree upon its growth.

33. Forced to rely upon himself financially, he becomes independent in other ways, for instance, independence in thought, which enables him to make quick and unprejudiced decisions.

34. We would suggest further that you advise us the exact dimensions of the window and door openings together with a plan-sketch of their location.

35. The doors needed for the house are: first, one for the front entrance. This door I would have finished in oak . . . . .

36. From the three windows comes the only source of light.

37. Rowing tends to regulate the weight of the rower as well as making his muscles hard and strong.

38. The college daily published a statement of the weights of the 'varsity men as freshmen and before the race last June.

39 Mayor S—— spoke of Mr. A—— not only as a material asset to the University but to the city itself as well.

40. Unless you steer carefully, the boat may crash into the wharf which may result in serious damage to it.

41. I inherited extravagance and freedom with money from my father, and an aversion to taking advice from my mother.

42. During my early years, I attended the school in our town,



entering the primary class and, as I grew older, advanced to higher grades, receiving my diploma in 1909.

43. During my high school curriculum, one event occurred which did more to influence my choice of college than any other of my experiences.

44. After getting well started in this school at the age of ten years, my parents were forced to move to W—— by my father's ill health, so my school work was again interrupted.

45. The room was lighted by an east and south window. In front of both windows stood a study table.

46. I attended this school for four years, which enabled me to enter the University.

47. One who studies nature closely and sympathetically will see more than the ordinary man.

48. The main use of the birch is of course the birch-bark canoe.

49. By studying these characters in fiction, our knowledge of human nature is broadened.

50. The author shows how the hero was saved from becoming a victim through his high ideal.

51. Shakespeare shows us not only that human nature is the same throughout his own land but also in different and far distant lands.

52. This canal is quite a piece of engineering, traveling through large cities and forests and even over rivers and valleys on aqueducts.

53. While on board this ship, the bombardment of Fort McHenry began and Key received his inspiration for our national anthem.

54. Another theory of the origin of language is that regarding words taken from animals such as *puss*.

55. Being only fifteen years of age and learning rapidly, the change of schools gave me no particular trouble.

56. As I had always been much interested in electricity, it was my sole desire to work at this industry.

57. Let us, for instance, contrast the benefits of the ideal newspaper with the real newspaper.

58. Besides my studies, I found time to make the football team, enter a debate, attend numerous social affairs, and some odd jobs about home.

59. My room-mate was an excellent scholar, which was beneficial to him in all his work.

60. Unlike the large cities of central Pennsylvania, there are no great mineral deposits, nor are there great facilities for lumber manufacture like the cities of Michigan.

61. In tracing a drawing the cloth is first tacked over the drawing, making certain that the cloth is taut.

62. He chooses a very simple example in his scientific reasoning that can be grasped by most any one.

63. Thus having these theories before them, the apparatus was fitted out to prove them so that they might become facts.

64. It was in June that our little party left Buffalo on an immense freighter, and started up Lake Erie, loaded with coal.

65. For example, how many students have tried to memorize a difficult lesson sitting up late at night, but finally, closing their book, retire, feeling discouraged because they were unable to master their lesson.

66. If this exercise is taken properly, i. e., moderately and warmly clad, it is not dangerous.

67. The ranger is to be compared with the cowboy who guards the cattle or to the railroad telegrapher who holds the railroads in his hands, while the ranger safeguards the forests.

68. In this theme I propose to discuss the relation of the forests to the water supply, which is, in my opinion, a matter of great importance.

69. Many victims of the drug habit, says Münsterberg, have been gradually led out of their harmful ways through the semi-hypnotic influence of others, and a cure subsequently effected.

70. A corked bottle filled with air and heated shows that air when heated expands by the cork popping out.

75. In order that the seeds will stay in position and also to provide them with moisture, we will pack them firmly with peat moss.

76. The ballast [of a subway] collects all sorts of impurities and being easily cast into the air as dust, is a constant menace to the health of the passengers.

77. The reason that the purchaser is limited in his choice is because the merchants do not carry a large stock of goods on account of the deficient railroad system; also this class of people do not expect a very large assortment of goods ordinarily, having no such needs as in the city.

78. If subscribers to the Daily Orange have any trouble in receiving their papers regularly, either by mail or carrier, they

will confer a favor by promptly notifying the circulation manager, either by telephone or postal, giving name and address, and immediate attention will be given the matter.

79. Binghamton is nearer Syracuse than Rochester.

80. As he worked four hours every night, it was not surprising that he received a lower grade than any man in his class.

81. He substituted this assignment by an advance exercise contrary to the course rules.

82. I can see the stacks of the steamers as they go up and down the river from my window.

83. Human beings have and do inhabit this dreary country.

84. While talking to my companion, the animal snapped the cord and escaped.

85. Of course the Empire State only stops at Utica and Albany, but near Yonkers it stops to change the steam engine for an electric engine. This eliminates the smoke in the city.

86. The architect has provided for separate lunch-rooms for men and women as well as rest rooms for the station.

87. It is usually difficult enough for people to meet and pass in the aisle of a car, but this passage is narrower still.

88. As far as making a success in any professional line, it matters little whether these men have any cultural education or not, but as a citizen, husband, and father, a combination of the two kinds of education is necessary.

89. Such a breaking up of long sentences leads to abruptness, and not enough variety is shown which the writer should carefully guard against.

90. It is their plans that construct fire lines, telephone lines, and observatories for the rangers and so guarding the forests against terrible fires.

91. He was injured toward the close of the game and replaced by Kauffman.

92. At this period of my life I became much interested in electricity and it was my sole desire to work at this industry.

93. They rise to many positions of trust, such as directors of large corporations, managers of factories and bank clerks.

94. Sentences are at first jotted down, paying attention to the order of the sentences but not to their form.

95. The English use the word in a different sense than the Americans do.

96. Travel is considered healthy where a person is afflicted with a disease which requires different atmosphere.

97. The crusher is easily repaired when broken at a small expense and in a short time.

98. Chemical engineering is a combination of a chemist with an industrial and mechanical engineer's knowledge thrown in.

99. Streets and good roads are built under his supervision and rivers are dredged through his department.

100. In New York State state conservation of forests is developed to the highest degree of any of the states.

101. The hot water heating plants consist of a furnace and a system of pipes leading from a coil of pipe within the furnace over the fire-pot to all the rooms to be heated.

### COORDINATION AND SUBORDINATION

Besides inaccuracy and wordiness, another common cause of ineffectiveness in the sentence is loose or illogical coordination. Where a formal, dignified, forceful style is required, the excessive use of *and* is fatal. It is a childish practice which we must put away when we address ourselves to science. To the two-year-old, things happen with no other relation than sequence; but to the scientist, every object and every event is the cause or consequence of another. This constant interplay of cause and effect must everywhere be reckoned with in science; it must even be written into the scientists style. But the conjunction *and* will not do it.

This abuse of a perfectly reputable word is as inexcusable as it is fatal. It is usually the result of carelessness. "Statements are strung together with *and*'s, on the same principle as that by which a railroad crew make up a train. The cars are loaded with different cargoes; some bear grain, some coal, some furniture some live stock. Some of the loads are worth a few hundred dollars, others are worth several thousands. The material or the value has nothing to do with their connection; they are coupled together solely because they are all going in the same direction." It is to couple that we use *and* in English, but the things coupled must all be of equal rank and value.

Besides being a fruitful source of incoherence, the overworked *and* leads also to the violation of sentence unity. It not only tempts us to crowd too much into a sentence, but it also often deceives our readers into believing that our *and*-connected clauses

are logically unrelated when in truth they have a very real relationship which needs but to be expressed. For example, the following sentence is confusing: *William the Conqueror invaded England in 1066 and we see a profound and permanent change in the language.* One who is unacquainted with the historical facts can see little connection between these two clauses as they stand, although the writer conceived them simultaneously and related them definitely in his mind. The reader demands something like this: *When William the Conqueror invaded England in 1066, there began a profound and permanent change in the language.* [Emphasis on time.] Or: *The invasion of England by William the Conqueror in 1066 wrought a profound and permanent change in the language.* [Emphasis on cause.] Observe that the correction is effected, not by the mere substitution of another connective (though this is sometimes sufficient), but by a radical shift in organic structure.

Reorganization, then, is commonly the best remedy for loose coordination. As a rule, the weak compound must be converted into either a simple or a complex sentence. Whether simple or complex, the periodic construction (if not over-used), in which the thought is suspended until the end of the sentence, is the most emphatic. The following list of possibilities will prove the flexibility of the English sentence.

#### TO REMEDY LOOSE COORDINATION

I. *Compound to simple*—Convert the independent clause containing the subordinate thought into a *phrase*:

- (1) Participial—nominative absolute, adjective.
- (2) Infinitive—of purpose, complementary.
- (3) Prepositional—adverbial, adjective.
- (4) Appositive—generally in agreement with the subject, predicate, or object.

II. *Compound to complex*—Convert the independent clause containing the subordinate thought into a *dependent clause*:

- (1) Causal—*because, since, for, as, etc.*; avoid the loose *so* construction.
- (2) Concessive—*though, although, even if.*
- (3) Conditional—*if, whether, unless.*
- (4) Contrasting—*whereas.*
- (5) Locative—*where, whence, etc.*
- (6) Noun—*that, the fact that, etc.*

(7) Purpose—*that, so that, in order that, lest.*

(8) Relative—*who, which, that.*

(9) Result—*so that, such that*; avoid the loose *so* construction.

(10) Temporal—*when, while as, after, before, since.*

NOTE: If contrast is to be expressed, the compound form of the sentence may be retained with the substitution of *but* for *and*. For especial emphasis, the correlatives *not only—but also* may be used.

“The use of phrases and clauses as parts of speech increases enormously the richness and power of language.”

### EXERCISES

Apply the suggestions above to the following sentences with a view to eliminating the troublesome *and* and *so*. [SEE CONDENSATION.]

1. The German people would not listen to him and he at last decided to abdicate.

2. Someone suggested Bismarck to him and so he summoned Bismarck to his aid and as a result the king's plans were executed and Germany became one of the greatest nations of Europe.

3. They were the king's “royal officials” who governed for him and they finally gained everything until the king was powerless.

4. To Otto the country which is now Italy appeared the easiest to subdue and this is what he set out at once to conquer.

5. There were also many minor officials in the service of the government and many noblemen and knights began to gather troops together to war among themselves.

6. France was in danger of losing her prestige because of her repeated failures and she wanted to wage war with some foreign power to regain the confidence of the world.

7. He was told that he had to hurry and much to our surprise he finished the work on time.

8. The contacts are made of platinum and the electric current will not fuse or melt them.

9. The subordinate clause precedes the main clause and it is therefore advisable to begin the main clause with the subject.

10. Repetition sometimes gives just the emphasis desired and this is called “judicious” repetition.

11. Sometimes of course the emphasis is very pronounced and then the exclamation point may very properly be used.

12. He just jotted down his ideas as they came, with no attempt at organization, and so the result was extremely incoherent and he failed.

13. After having been in high school a year I grew to dislike my mathematics and this was the reason I failed.

14. The letter must command respect, so it must be clear and forceful.

15. I found I was not very good in any of the sports, so I kept out.

16. Like mathematics, English is difficult for me and so I get discouraged sometimes and cannot do my best.

17. But an uncle of mine persuaded me to get an education, so that is why I am now in Syracuse University.

18. But at this time my mother was taken sick and we lived for two years in the country and I attended a country school.

19. My name was pretty well down in the list of the eligible men, so I had ample time to make my preparation.

20. I was eighteen years of age at the time of my entrance and so I entered the S. A. T. C.

21. I had intended to study law, but engineering seemed to offer a broader field, so I finally decided to enter Smith College.

22. I was never very fond of agriculture and I decided very early that I would find some other occupation.

23. My father was a member of the city fire department and I was always greatly interested in the various kinds of apparatus, so later when it came to choosing my course of study, engineering seemed to make the strongest appeal.

## V CONDENSATION

*"Brevity is the soul of wit."—Shakespeare.*

"GOOD ENGLISH," says Professor Palmer, "is exact English. Our words should fit our thought like a glove, and be neither too wide nor too tight. If too wide, they will include much vacuity beside the intended matter. If too tight, they will check the strong grasp. Of the two dangers, looseness is by far the greater."<sup>1</sup>

By "exact English" Professor Palmer obviously means not only accurate English but concise English—English divested of all that may encumber and enfeeble the thought. It is true that a certain kind of repetition was a literary habit in the ninth century, when synonymous words were frequently coupled to express a single idea—a habit which has survived to this day in such hackneyed expressions as 'lord and master,' 'without let or hindrance,' 'really and truly,' etc. But even here Professors Greenough and Kittredge feel impelled to suggest that the repetition "may be due to some uncertainty as to the exact scope of the English words, then first applied to the finer shades of thought."<sup>2</sup> And, frankly, is not this the secret of much of our verbiage—the want of the inevitable word? But with all the facilities for self-improvement now at our command, there can be no justification of such repetition to-day. Indeed, present usage sanctions repetition of no kind that is not consciously designed to enforce the thought.

Wordiness, call it by whatever name you like—repetition, redundancy, prolixity, tautology, pleonasm, or verbosity—is not a marketable product. To be sure, men have been known to be deliberately wordy, and with profit. Oliver Wendell Holmes, for instance, one humorously wrote: "There is one delicate point I wish to speak of with reference to old age. I refer to the use of dioptric media which correct the diminishing refracting powers of the humors of the eye,—in other words, spectacles."<sup>3</sup> And we laugh with the *Autocrat*. Again, filibustering senators have "circumlocuted" from eleven to eighteen hours in order to block legislation; but circumlocution was their ammunition. The

<sup>1</sup>George Herbert Palmer, *Self-Cultivation in English*, Riverside Educational Monographs (Houghton Mifflin Co.).

<sup>2</sup>*Words and Their Ways in English Speech* (Macmillan Co., 1901), pp. 113-114.

<sup>3</sup>*Autocrat of the Breakfast Table*, p. 173.



technical man can find no such warrant for diffuseness? In fact, modern business will not tolerate it; you put the case straight from the shoulder, or you quit.

Now, there are several well founded reasons for this persistent demand for compact expression. In the first place, business and professional men are busy men; they have no time to puzzle over diffuse reports and letters—the engineer must do his own blue-penciling. Secondly, the wordier our sentence, the obscurer the thought, and obscurity is akin to inaccuracy. Thirdly, in science, a thing has but one name; no number of remote synonyms will answer; you must find the specific term. And fourthly, the straighter the course and the shorter the distance, the greater the striking force—directness is power.

To this end, then, we condense. How?

The first aid to concise English is a wide range of words. It is usually the illiterate man, the man of scant vocabulary, who must use his hands and countless syllables merely to *suggest* a simple thought. On the other hand, there is no better evidence of a keen intellect than a terse and vigorous style. But to attain this style, one must learn the intrinsic values of words, he must be able to find the one word of all words that will convey an idea without the aid of a host of modifiers. Again, books—especially the dictionaries—stand ready to help.

Beyond this, the observance of a few special cautions will enable us effectively to prune our style—"to lop off those useless excrescences. . . commonly found in a first draft."

### CAUTIONS

I. Avoid the useless repetition of an idea.

Poor: There should be a systematic and organized arrangement of thought.

Better: There should be a systematic arrangement of thought.

II. Do not use a clause when one word or a phrase will suffice. The relative pronouns, *who*, *which*, and *that*, especially, are much overworked.

1. Poor: After leaving M——, which is a great industrial center, we made a tour of the southern section of the state.

Better: After leaving M——, a great industrial center, we made a tour of the southern section of the state. (Apposition.)

2. Acceptable: The man whom you sent me last month is doing excellent work.

Better: The man you sent me last month is doing excellent work. (Relative pronoun understood.)

3. Poor: As I had made little progress in all this time, I decided to quit.

Better: Having made little progress in all this time, I decided to quit. (Participial phrase instead of clause.)

III. Do not use a phrase (adjective or adverbial) when one word will suffice.

1. Poor: It is simply a small box, made of wood and covered with leather.

Better: It is simply a small leather-covered wooden box.

2. Poor: Racing before the wind in its mad course, it crossed the line three lengths the winner.

Better: Racing madly before the wind, it crossed the line three lengths the winner.

IV. Do not use an unnecessary adjective or adverb. The intensives, especially, are much abused. (Cf. Caution I.)

1. Poor: Be assured, I very much appreciate all you have done.

Better: Be assured, I appreciate all you have done.

2. Poor: The general universality of its use makes the demand for this instrument highly exceptional.

Better: The universality of its use creates an exceptional demand for this instrument.

V. Avoid the use of compound conjunctions and prepositions if the simpler forms are as clear. For example: *in order to* = *to*; *in back of* = *behind*; *in such a way that* = *so that*; *provided that* = *provided*; *in case that* = *if*; *the fact that* = *that*; *for the reason that* = *because*; *by the way of* = *through* or *by*; *by means of* = *with*, or *through*; etc.

1. Poor: Wordiness should be avoided for the reason that it retards and weakens one's expression.

Better: Wordiness should be avoided because it retards and weakens one's expression.

2. Poor: By means of hard study I succeeded in passing the course on the second trial.

Better: By hard study I succeeded in passing the course. . . .

VI. Avoid useless verbs.

1. Poor: This valve was designed for the purpose of preventing the gas from escaping.

Better: The purpose of this valve is to prevent the escape of gas. *Or:* This valve prevents the escape of gas.

2. Poor: My course happened to be so arranged as to permit me to work afternoons.

Better: The arrangement of my course permitted me to work afternoons. *Or:* My course permitted afternoon work.

VII. Do not add an unnecessary thought. Once the main thought has been adequately expressed, additional matter tends only to weaken what has gone before.

Poor: From this barrel the ink flows to the point of the pen, where it makes a mark upon the paper which the writer has before him.

Better: From this barrel the ink flows to the point of the pen.

NOTE: *Never sacrifice clearness, fluency, and force to brevity.*

### EXERCISES IN CONDENSATION

Condense each of the following sentences and give specific reasons for any changes from the original. Care should be taken not to alter the main thought or the emphasis, unless these are obviously wrong. Nor should clearness be sacrificed to compactness.

1. In the event that your order is given us within ten days from date, it will be possible for us to deliver the machine by May 10.

2. If upon receipt of this letter the order has not been shipped, will you kindly give it your immediate attention and see that it is forwarded at once.

3. I will be glad to furnish you with any further information you may desire to know.

4. Your letter of May 12 is at hand; and in reply we wish to say that, as we shipped the goods on May 7, the railway company is the one to blame for the delay.

5. For its growth a tree needs a good anchorage, for no tree can live and grow if it does not have a good, solid foundation.

6. He convinced me conclusively that a tunnel was the only feasible way of overcoming the obstacle.

7. In measuring the windows you can have a carpenter do it or you can have one of our agents do it.

8. We have made inquiries about screens for the new hotel which we are building and we think that you have the kind of screen which we wish to purchase.

9. I am building a home at present here in Brookville, and it is my desire to equip the house with first-class screens.

10. Your letter of March 26, stating the time at which the screens would be delivered, promised me a delivery before this date.

11. I believe that I have the necessary qualifications of education and experience required for the position you advertise.

12. Copper oxide is a substance which is made up of copper and oxygen.

13. Just before the board comes out of the machine it passes under a brush that is turning around very fast, which cleans off all the dust.

14. Gravity is the attraction which the earth has to draw all bodies toward itself. It is the force which tends to draw all things toward the center of the earth.

15. Gravity depends upon the mass or density of the body in the first place; while, secondly, it depends upon the location of the body relative to the earth's surface.

16. The outlook for the future is not very bright because of the fact that the game birds are being killed off.

17. I hope that this information will be sufficient so that you can send an immediate quotation of the cost.

18. In cases where power can be generated close to where it is to be used, it is cheaper to use water power than steam.

19. The language is very clear and readily understood, hence the reason why it is so popular among the young folks.

20. The moral is not tacked on as an after-thought but pervades throughout the whole story.

21. Every day when we pick up a newspaper we can find an account of some murder having taken place, and nearly every day we may read the vivid account of a trial for some murder.

22. In this state there is much talk of a law being put into force to the effect that all men between the ages of eighteen and sixty who are not engaged in some regular employment must register and when examined, if found physically fit, be drafted to do some kind of useful work.

23. The manufacture of sulphuric acid is usually based on the fact that the oxidation of sulphuric dioxide in the presence of water forms the acid.

24. It is to be seen that in case of fire in that building there would be great danger of lives being lost, for, although the

building itself is made of brick, still the stairways and floors and ceilings are made of wood.

25. A description of the machine that accomplished this process will probably aid the reader to have a more vivid conception of the process.

26. The origin of "The Star-Spangled Banner" is probably of as great interest as that of any song which one might think of. It was peculiarly brought about through the thoughts of an Englishman who once wrote "To Anacreon in Heaven." The music of this song became the music of our national anthem which was written by Francis Scott Key. It was written because of the courageous defense of Fort McHenry at Baltimore.

27. The occupation of these people was mostly various kinds of business. This was due to the fact that they had practically no right to do anything else.

28. These three examples show very clearly that the invention of a satisfactory explosive is a very difficult matter, and one that requires many years of hard labor.

29. We will first consider that method of advertising which is known as pictorial advertising.

30. The smoke problem is one which has been much before the people of this world and which has created a great deal of comment ever since the beginning of the Christian era. Fire has been used for heating purposes ever since man made his appearance on the globe.

31. There is one matter that has given the public much thought, and that is that the posting of bills along our principal ways of travel does not add to the beauty of the landscape, but has the directly opposite effect.

32. Before 1855 he had written thirty papers along technical lines.

33. There should be a systematic and organized arrangement of material and an orderly presentation of thoughts, each part related to the other.

34. There are many students who are unable to participate in these contests because it is too great a tax upon their strength.

35. In most colleges the players of football eat at a table called the training table, which is under the direction of a person who is supposed to know the kind of food that should be eaten by men that play the game.

36. The meaning of the word **culture** is that it stands for a knowledge of learning and of the will of God.

37. In time all the corporations and railroads that own land will see the value of forestry and will carry out extensive forestry on all their idle land and will require the services of a large number of foresters to carry out their work.

38. Many large lumber companies are beginning to employ trained foresters to harvest their lumber, because the forester is trained to make definite plans as to the best way to lumber a tract of timber with least expense and yet get the largest returns.

39. It is through these channels that the food and water together pass in going to the other parts of the tree.

40. Many of the noted botanists and scientists of the country have studied and experimented in order to bring about a cure that will rid the country of this great pest.

41. Chemical engineering requires a combination of a knowledge of chemistry with that of industrial and mechanical engineering thrown in.

43. It sometimes happens that even the most careful plans prove themselves to be ill adapted to the situation as it actually presents itself.

44. Chauncey Olcott presented at the Empire Theatre last night his new play entitled "The Isle o' Dreams" and received a hearty welcome at the hands of a large and discriminating audience . . . . His attractive individuality, pleasing and magnetic presence and the beauty of his singing voice are attributes which combine to make him a player whose popularity is unexcelled.

45. We will begin with magnetism, although we could begin anywhere, for the truth is, as we shall find out, that electricity and magnetism work in a circle.

46. Those who were afflicted with some disease or with blindness and those who were crippled sought the shrines in order to be cured of their physical defects.

47. The post office was also connected with the country store and therefore this came to be a place where all the wisest men of the town collected to discuss the great political questions which were so important then.

48 We should like to help you to solve your heating problem in the most satisfactory manner, and shall not only be glad to

supply you with any of our printed matter in which you may be interested, but will also take pleasure in answering any special questions you may care to ask regarding IDEAL Boilers and AMERICAN Radiators.

49. Inasmuch as the site for the Syracuse post office has been acquired, that is considered a strong argument for an appropriation for the building.

50. His great love of truth, his ability to inspire confidence through his true-heartedness and his knowledge of the common people made him a lecturer in such a degree that he was able to obtain the approval of the common people.

51. There are many who will condemn your ruling as one that is influenced by fear of certain powerful interests.

52. Through the carbureter the correct mixture of gas and air is made so that it will be the proper explosive mixture.

53. If the traffic is composed of both automobiles and horse-drawn vehicles, the horse-drawn vehicles perform the operation that it was intended they should, but the swiftly moving automobile ruins the work because the rubber tires present a rather large surface to the roads, and since they are revolving swiftly, they leave a vacuum into which the air rushes, drawing with it all the loose particles and pieces of the surface of the road. Then the wind catches these particles and blows them where they are not needed.

54. We are to consider the benefits of a college education to the man who enters the S. A. T. C., the benefits of travel in the army for the man later, the benefits of life in the army upon the health of the man, and the moral effect of the benefits of being a soldier.

55. Several other college dailies from these institutions which are frequent opponents of the Orange teams in their various athletic battles of the year are kept on file in the Daily Orange office and hence will not be included among those to be sent to the reading room of the library.

56. Certainly there is much possible good which could result from such an organization.

57. If every game is attended with this interest aroused, there is no doubt that a greater interest in women's athletics will come about.

58. But today, in order to build a road so that it satisfies the public which should be satisfied because they are paying for it,

it takes an engineer to lay out this road, make a map of it, and then draw up the specifications of how it should be built. When the contract for the road to be built is let, again the engineer is called upon to see that it is built properly.

59. These ditches are so arranged as to be allowed to overflow evenly and to give the soil the necessary amount of water.

60. A good test of unity in the paragraph is for one to analyze each of his sentences to make sure that it bears a close relationship to the topic sentence.

61. If the trunk is allowed to decay or is injured in any other way, the tree is unable to do its work properly, its health is affected, as well as its appearance, and it is of little value.

62. The stage is also provided with two clips of tough steel fastened in such a manner that they will hold the slide from slipping out of position.

63. The stand consists of the entire microscope without the ocular parts. The part resting on the table is usually of cast iron and horseshoe in shape. This is known as the base.

64. Besides a growth in the development along mechanical, electrical, and various other branches of scientific work, there has come into prominence a steady growth of microscopical research.

65. The motorman is able to see what is taking place behind him in the rear of the car without looking around. This is another advantage of this type of car.

66. There are only two handles for operating the doors and they are carried on the center stanchion.

67. The passengers may be carried for several miles before any unloading takes place and then they are discharged in small groups as on an ordinary car.

68. At the bottom of the first two keys in the tubing [of the cornet] are the water-keys. These are used to remove any saliva that may collect there. There is a hole in the tubing, which is covered by a pad on one end of the key. By pressing the other end, the hole is opened and the saliva is allowed to run out.

67. The slag is drawn off through an opening similar to this, situated a short distance above the tapping point.

70. It will help us to follow the description of the stables if we refer back to figure II on page five.

71. There are several types of cylinder casting used.



72. This gearing consists of a steel sleeve which is journaled into eccentric bushes, which in turn are journaled into two bearings which are lined with white metal.

73. For three hundred years the emperors of Germany made attacks against Italy but were repeatedly beaten back to their own borders and repulsed by the Italians.

74. From the tenth to the twelfth centuries the Prussian state was very much divided up into small states. These smaller states all had their own separate forms of government and lived independently of the other states, each managing its own affairs as it chose.

75. He had great desires to extend his empire, so he began his undertaking by starting to conquer Italy and to get control of the Pope and eventually to become the ruler supreme over all Europe.

76. No other step tending to unite the German states was taken until in 1848 an effort was made to unite Germany, which failed.

77. The present war, the end of which is now very near, has presented many interesting conditions and events and has also raised many difficult questions, especially about international law; one of these is that concerning the neutrality of Belgium and the violation of that neutrality by the forces of the invading Germans.

78. To be loyal to a government, the people under that government must know the truth as it exists about that government and must also know the truth about the purposes and aims of that government, which is going to use the services of its people to carry out such purposes and aims.

79. With this system it is possible to handle larger crowds than by the ordinary method.

80. These crystals when they are tested are found to have the same properties as real diamonds.

81. The sliding transmission consists of a number of gears of different sizes, arranged in such a way in connection with the driving shaft that they may be interchanged.

82. There are many types of boats used for dredging oysters, but the predominating craft is built on the lines of a tug and runs by steam.

83. In many cases, when two or more chemicals are mixed, their combination is accompanied by the production of heat.

This heat is known as the heat of chemical action.

84. By means of slide-valves very much similar to those of a steam engine of the ordinary type, worked by the movement of these partitions, the gas which is to be measured passes alternately in and out of each space.

85. If I had plenty of spare time with nothing else to do and all the means to do it properly, I think I should like to spend a winter in Florida, the state of oranges.

86. I was finally compelled to abandon the study of these subjects on account of the fact that my father informed me that I should be obliged to give up my intention of going to college the following fall.

87. Some of the events prior to the foundation of the present German Empire which have a bearing on that foundation, are interesting and a knowledge of them is necessary to fully comprehend Germany's actions in the present war.

88. Thus, we who are to go to war are to be taught truthfully the causes and aims of this war, which are taught us in this war aims' course.

89. Even up to the time of the beginning of the present war there has been a feeling of hatred shown by the Germans toward the French.

90. At this particular time the king's time was very much taken up with his foreign affairs and so he accordingly appointed a large number of "Royal officials."

91. By means of these secessions the king lost all his power and much of his means and was left destitute.

92. The leaders at most times were intoxicated with the aspirations of forming a second Holy Roman Empire which we again see for ourselves in the present struggle which is taking place in Europe.

## VI

### THE PARAGRAPH

THE model paragraph is a small composition complete in itself. Like the long theme, it must have a definite topic statement, the development or proof of that statement, and a conclusion enforcing it.

The same principle of logic which underlies all mathematical processes governs as surely the organization of the English paragraph. Let us, for example, analyze a paragraph and compare it with a problem in geometry.

The following paragraph from Professor Barrett Wendell's *English Composition* (1891) will serve our purpose:

[The opening transitional sentence is omitted.] [TOPIC] The principle, then, [that the chief parts of a composition should be so placed as readily to catch the eye] is not only theoretically applicable to paragraphs, but to a great degree actually so applicable in practice. [BODY] How conspicuous the chief places in any paragraph are, a glance at any printed page will show. Trained or untrained, the human eye cannot help dwelling instinctively a little longer on the beginnings and the ends of paragraphs than on any other points in the discourse. Let any one of you take up a book or an article, hitherto strange, and try in a few minutes to get some notion of what it is about. Whoever has tried to do even very little reviewing for the newspapers, whoever has tried to collect authorities for a legal brief,—knows the experience disagreeably well. First, you instinctively look at the beginning of the article or book, then at the end; then, turning over the pages, you skim them,—in other words, you glance at the beginning and at the end of each paragraph, to see whether it is a thing you wish to read more carefully. And if the paragraphs in question be well massed, you are made aware of it by the fact that the process of intelligent skimming is mechanically easy: that you can, apparently by instinct, arrest your attention on those parts which serve your purpose. If, on the other hand, as is more frequently the case, the paragraphs in question be ill massed, you find difficulty in discovering what you want. [CONCLUSION] All this is quite independent of sentence-structure, and of unity, and of coherence. It is a simple question of visible, external outline: and it means, in other words, that the beginning and the end of a paragraph are beyond doubt the fittest places for its chief ideas, and so for its chief words.

## THE GEOMETRIC PROBLEM

- PROPOSITION: The principle that the chief parts of a composition (Topic sentence.) should be so placed as readily to catch the eye is applicable in practice to the paragraph.
- GIVEN: That the chief parts of a composition should be so placed as readily to catch the eye.
- TO PROVE: That this principle is applicable in practice to the paragraph.
- PROOF:
1. A glance at any printed page will show how conspicuous the chief places in any paragraph are.
  2. The human eye cannot help dwelling a little longer on the beginnings and the ends of paragraphs than on any other points . . .
  3. Whoever has tried to do . . . reviewing . . . or to collect authorities . . . knows the experience . . .
    - (1) The process: First, you instinctively look at the beginning of the article, then at the end; then . . . you look at the beginning and at the end of each paragraph . . .
    - (2) The results:
      - (a) And if the paragraphs . . . be well massed, you are made aware of it by the fact that the process of intelligent skimming is mechanically easy . . .
      - (b) If, on the other hand, . . . the paragraphs . . . be ill massed, you find difficulty in discovering what you want.
- CONCLUSION: All this . . . means . . . that the beginning and the (Q. E. D.) end of a paragraph are beyond doubt the fittest places for its chief ideas and so for its chief words.

Such an analysis reveals a close analogy between the fundamental parts and functions of the paragraph and the geometric problem.\*

### UNITY, COHERENCE, AND EMPHASIS IN THE PARAGRAPH

UNITY. The *initial* test of paragraph unity is the topic statement, the subject stated as a proposition,—that is, in a full sentence. Unless the writer has thus crystalized the main thought at the very outset, he will have no gauge by which to test the relevancy and validity of the ideas which come swarming in about the central thought.

The *ultimate* test of paragraph unity is the ability to condense the whole paragraph into a single gist sentence. This may or may not,—though in the well rounded paragraph it usually does—coincide closely with the concluding sentence.

\*This comparison was suggested by a somewhat similar exercise in "A Study of the Paragraph" by Helen Thomas (1912).

COHERENCE. In every paragraph, as in every longer composition, there are two kinds of coherence or connection, internal and external. The first and the more vital is seen in the logical ordering of the sentences so that each introduces the next; it is a matter of thought growth, which goes on on a large scale in the mind before any attempt is made to set thought down. (See Model Outline.) The second and the more artificial is seen in the use of words, phrases, clauses, and sentences for no other purpose than to link, and is generally the result of careful revision after the thought has been set down. (See Devices of Connection.) The first, organization, is indispensable; the second, the use of transitional devices, is usually helpful, but is never sufficient in itself.

EMPHASIS: In the passage quoted above, Professor Wendell has already shown that "the beginning and the end of a paragraph are beyond doubt the fittest places for its chief ideas." Beyond this, it need only be said, apply the principle of proportion, giving space according to the relative importance of the ideas. (See Deductive Paragraph below.)

#### TYPES OF PARAGRAPHS

1. With relation to types of discourse:

- (1) Expository (all methods of development; see 4 below).
- (2) Argumentative (see 4 (8) below).
- (3) Narrative (group of related incidents).
- (4) Descriptive (details and illustrations).

2. With relation to their function in the composition:

- (1) Introductory: (a) announces topic, (b) justifies choice of topic, (c) sometimes divides subject (outline).
- (2) Defining (more rare): interprets topic in other terms.
- (3) Outlining: formal enumeration of divisions of subject.
- (4) Developing—The model paragraph: always topic statement, development, (generally) conclusion (inference) or summary.
- (5) Transitional: restatement of old topic, announcement of new, statement of relationship between the two.
- (6) Summarizing: formal recapitulation of main divisions of subject as proved. (Cf. outline paragraph.)
- (7) Concluding: comprehensive restatement of main proposition as proved; inference. (Cf. introd. ¶, (a).)

3. With relation to order of parts:

- (1) Deductive: normal order with topic sentence at beginning.
- (2) Inductive: order reversed with topic sentence at end; especially adapted to the treatment of a difficult, abstract subject.

See examples below.

4. With relation to methods of development:

- (1) Repetition: restating the thought in other words, with occasional repetition of key words and consistent use of pronoun reference.
- (2) Particulars and details: from large to small, general to specific. (Found especially in description.)
- (3) Instances: concrete facts; actual things or occurrences illustrating the application of the principle under discussion.
- (4) Illustrations: imaginary, hypothetical instances; examples.
- (5) Comparison: likeness, especially to something familiar; analogy.
- (6) Contrast: unlikeness, especially to something familiar. We can always understand the new better by comparing and contrasting it with the old.
- (7) Cause and effect (in either direction): one truth discovers another; one operation grows out of or leads to another; inferences.
- (8) Argument: formal proof by any one or a combination of (3), (4), [(5)], [(6)], (7), especially (7); deductive reasoning; aim to convince.

A paragraph may be developed by any one of these methods alone or by a combination of them. In common practice, however, it is seldom that we find one absolutely pure. The methods vary according to the exigencies of the occasion, the mental preparedness of the audience, and the nature of the subject.

#### EXAMPLES OF DEDUCTION AND INDUCTION

DEDUCTION. [TOPIC] The circle of human nature, then, is not complete without the arc of feeling and emotion. [DEVELOPMENT] The lilies of the field have a value for us beyond their botanical ones—a certain lightening of the heart accompanies the declaration that “Solomon in all his glory was not arrayed like one of these.” The sound of the village bell which comes mellowed from the valley to the traveller upon the hill, has a value beyond its acoustical one. The setting sun when it

mantles with the bloom of roses the alpine snows, has a value beyond its optical one. The starry heavens, as you know, had for Immanuel Kant a value beyond their astronomical one. Round about the intellect sweeps the horizon of emotions from which all our noblest impulses are derived. I think it very desirable to keep this horizon open; not to permit either priest or philosopher to draw down his shutters between you and it. And here the dead languages, which are sure to be beaten by science in the purely intellectual fight, have an irresistible claim. They supplement the work of science by exalting and refining the æsthetic faculty, and must on this account be cherished by all who desire to see human culture complete. There must be a reason for the fascination which these languages have so long exercised upon the most powerful and elevated minds—a fascination which will probably continue for men of Greek and Roman mould to the end of time.—From *An Address to Students* (University College, London, 1868-69), by John Tyndall (1820-1893).

See also Professor Wendell's paragraph quoted above.

INDUCTION: What (besides better hours, better wages, healthier conditions) are the points of a good job? Imagine a sensible man looking for a satisfactory work, a vocational adviser guiding novices toward the best available occupation, and a statesman trying to mold the industrial world somewhat nearer to the heart's desire—what should they try for? Physical and financial standards determine what we get *out* of a job. But what shall get *in* it? [TOPIC] Much or little, I think, according to its fitness or unfitness for our personality,—a factor much neglected nowadays. [The author's succeeding paragraph begins: "Among the points of a good job I shall name seven . . ."]—From *The Call of the Job* by Richard Clarke Cabot (1868—), *The Atlantic Monthly* (November, 1913).

Thus the matter of life, so far as we know it (and we have no right to speculate on any other), breaks up, in consequence of that continual death which is the condition of its manifesting vitality, into carbonic acid, water, and nitrogenous compounds, which certainly possess no properties but those of the ordinary matter. And out of these same forms of ordinary matter, and from none which are simpler, the vegetable world builds up all the protoplasm which keeps the animal world going. [TOPIC] Plants are the accumulators of the power which animals distribute and disperse.—Thomas Henry Huxley (1825-95).

The following extract illustrates the effective use of the inductive method in adapting an abstract subject to the immature mind:

"Well, there is something still more hidden than air, more invisible, more difficult to detect. It is everywhere, absolutely everywhere, even in us; but it keeps itself so quiet that until now you have never heard of it . . . You might seek in vain by yourselves all day, all the year, perhaps all your life; you would

not find it. The thing I am speaking of, you understand, is singularly well hidden; scholars had to make very delicate researches to learn anything about it. Let us make use of the means they have taught us to bring it to light."

Uncle Paul took from his desk a stick of sealing-wax and rubbed it rapidly over his cloth sleeve; then he put it near a small piece of paper. The children were all eyes. Behold the paper flies up and sticks to the sealing-wax. The experiment is repeated several times. Each time the paper rises unaided, starts off, and fastens on to the stick.

"The piece of sealing-wax which formerly did not attract the paper, now does. The rubbing on the cloth has, then, developed in it something that cannot be seen, for the stick has not changed in appearance; and this invisible thing is nevertheless very real, since it can lift up the paper, draw it to the wax, and hold it glued there. This thing is called *electricity* . . . . ."

### DEDUCTION AND INDUCTION EXPLAINED AND ILLUSTRATED

Probably there is not one here who has not in the course of the day had occasion to set in motion a complex train of reasoning, of the very same kind, though differing of course in degree, as that which a scientific man goes through in tracing the causes of natural phenomena.

A very trivial circumstance will serve to exemplify this. Suppose you go into a fruiterer's shop, wanting an apple,—you take up one, and, on biting it, you find it is sour; you look at it, and see that it is hard and green. You take up another one, and that too is hard, green, and sour. The shopman offers you a third; but, before biting it, you examine it, and find that it is hard and green, and you immediately say that you will not have it, as it must be sour, like those that you have already tried.

Nothing can be more simple than that, you think; but if you will take the trouble to analyze and trace out into its logical elements what has been done by the mind, you will be greatly surprised. In the first place you have performed the operation of induction. You found that in two experiences, hardness and greenness in apples went together with sourness. It is so in the first case, and it was confirmed by the second. True, it is a very small basis, but still it is enough to make an induction from; you generalize the facts, and you expect to find sourness in apples where you get hardness and greenness. You found upon that a general law that all hard and green apples are sour; and that, so far as it goes, is a perfect induction. Well, having got your natural law in this way, when you are offered another apple which you find is hard and green, you say, "All hard and green apples are sour; this apple is hard and green, therefore this apple is sour." That train of reasoning is what logicians

\*From "The Story-Book of Science" by Jean-Henri Fabre. translated by Florence Constable Bicknell (Century Co., 1918).



call a syllogism, and has all its various parts and terms,—its major premiss, its minor premiss, and its conclusion. And by the help of further reasoning, which, if drawn out, would have to be exhibited in two or three other syllogisms, you arrive at your final determination, "I will not have that apple." So that, you see, you have, in the first place, established a law by induction, and upon that you have founded a deduction, and reasoned out the special particular case. Well now, suppose, having got your conclusion of the law, that at some time afterwards, you are discussing the qualities of apples with a friend: you will say to him, "It is a very curious thing,—but I find that all hard and green apples are sour!" Your friend says to you, "But how do you know that?" You at once reply, "Oh, because I have tried them over and over again, and have always found them to be so." Well, if we were talking science instead of common sense, we should call that an experimental verification. And, if still opposed, you go further, and say, "I have heard from the people in Somersetshire and Devonshire, where a large number of apples are grown, that they have observed the same thing. It is also found to be the case in Normandy, and in North America. In short, I find it to be the universal experience of mankind wherever attention has been directed to the subject." Whereupon, your friend, unless he is a very unreasonable man, agrees with you, and is convinced that you are quite right in the conclusion you have drawn. He believes, although perhaps he does not know he believes it, that the more extensive verifications are,—that the more frequently experiments have been made, and the results of the same kind arrived at,—that the more varied the conditions under which the same results are attained, the more certain is the ultimate conclusion, and he disputes the question no further. He sees that the experiment has been tried under all sorts of conditions, as to time, place, and people, with the same result; and he says with you, therefore, that the law you have laid down must be a good one, and he must believe it. . . .

So much, then, by way of proof that the method of establishing laws in science is exactly the same as that pursued in common life. Let us now turn to another matter (though really it is but another phase of the same question), and that is, the method by which, from the relations of certain phenomena, we prove that some stand in the position of causes towards the others.

I want to put the case clearly before you, and I will therefore show you what I mean by another familiar example. I will suppose that one of you, on coming down in the morning to the parlor of your house, finds that a tea-pot and some spoons which had been left in the room on the previous evening are gone,—the window is open, and you observe the mark of a dirty hand on the window-frame, and perhaps, in addition to that, you notice the impress of a hob-nailed shoe on the gravel

outside. All these phenomena have struck your attention instantly, and before two seconds have passed you say, "Oh, somebody has broken open the window, entered the room, and run off with the spoons and the tea-pot!" That speech is out of your mouth in a moment. And you will probably add, "I know there has; I am quite sure of it!" You mean to say exactly what you know; but in reality you are giving expression to what is, in all essential particulars, an hypothesis. You did not *know* it at all; it is nothing but an hypothesis rapidly framed in your own mind. And it is an hypothesis founded on a long train of inductions and deductions.

What are those inductions and deductions, and how have you got at this hypothesis? You have observed in the first place, that the window is open; but by a train of reasoning involving many inductions and deductions, you have probably arrived long before at the general law—and a very good one it is—that windows do not open of themselves; and you therefore conclude that something has opened the window. A second general law that you have arrived at in the same way is, that tea-pots and spoons do not go out of a window spontaneously and you are satisfied that, as they are not now where you left them, they have been removed. In the third place, you look at the marks on the window-sill, and the shoe-marks outside, and you say that in all previous experience the former kind of mark has never been produced by anything else but the hand of a human being; and the same experience shows that no other animal but man at present wears shoes with hob-nails in them such as would produce the marks in the gravel. I do not know, even if we could discover any of those "missing links" that are talked about, that they would help us to any other conclusion! At any rate the law which states our present experience is strong enough for my present purpose. You next reach the conclusion that, as these kinds of marks have not been left by any other animal than man, or are liable to be formed in any other way than by a man's hand and shoe, the marks in question have been formed by a man in that way. You have, further, a general law, founded on observations and experience, and that, too, is, I am sorry to say, a very universal and unimpeachable one,—that some men are thieves; and you assume at once from all these premisses—and that is what constitutes your hypothesis—that the man who made the marks outside and on the window-sill opened the window, got into the room and stole your tea-pot and spoons. You have now arrived at a *vera causa*;—you have assumed a cause which, it is plain, is competent to produce all the phenomena you have observed. You can explain all these phenomena only by the hypothesis of a thief. But that is a hypothetical conclusion, of the justice of which you have no absolute proof at all; it is only rendered highly probable by a series of inductive and deductive reasonings.\*

\*T. H. Huxley, "The Causes of the Phenomena of Organic Nature," in "Darwiniana."

## EXERCISE IN PARAGRAPH AND SENTENCE STRUCTURE

1. Has the paragraph a distinct topic sentence. What is its position?
2. Has the paragraph a distinct concluding sentence?
3. Does the paragraph read smoothly; that is, is the coherence well effected?
4. Does the writer secure variety in sentence structure?
5. Re-write the paragraph, reconstructing faulty sentences and supplying the necessary transitions.

(1) The coach in choosing his men for a crew must take into consideration many things which a good crew man should have. (2) He must in other words size his men up and do so with the utmost care. (3) The crew man is generally well developed physically, he should have a long reach of arm, powerful shoulders and arms, a strong back, and sturdy thickset legs. (4) Rowing is very strenuous exercise and a crew man should have endurance and good wind. (5) Crew develops the mind as well as the body and the training a man receives, if he is fortunate enough to make a seat on the crew, serves him in many ways when he is out of college. (6) He is of good physique, has good health, which prepares him for work later on. (7) These things come about by the training he is put through, as for instance training table at which he receives only such food as will produce muscle and bone. (8) Rowing on the crew develops the mind as the various exercises he does trains his mind to work with precision. (9) Another advantage to the crew man is that his work is mostly out of doors where he has the use of good fresh air at all times.—*From a student theme.*

## VII

### COHERENCE

THE coherence of a composition is attained in two ways: (1) by logical arrangement (internal organization), the result of careful revision or planning; and (2) by the use of special transitional devices, generally the result of thorough revision. The following exercises illustrate the two methods:

#### MODEL OUTLINE

##### "TWO KINDS OF EDUCATION FOR ENGINEERS"

By John Butler Johnson

(Aydelotte, *English and Engineering*, pp. 107-124.)

#### A. INTRODUCTION: Topic; its importance, definitions:

##### I. Definition and importance of Education

(*General*); (¶ 1)

##### II. Division of subject—2 kinds of education

(*Outline*); (¶ 2)

##### III. Definition of each kind:

1. Competency to serve. (¶ 3)

2. Competency to appreciate and enjoy. (¶ 4)

#### B. BODY: The Engineer must be a well balanced man:

(¶'s 5-14)

##### I. Neither kind of education is adequate in itself:

1. Two extremes contrasted (*General*); (¶ 5)

2. Narrow technical man contrasted to well rounded citizen (*More specific*). (¶ 6)

##### II. Ideal engineering education embraces both kinds:

(¶'s 7-14)

1. Competency to serve: (¶'s 7-10)

a. Preparation in college— (¶'s 7-9)

(1) Theory— (¶'s 7-8)

(a) Qualitative knowledge,

(b) Quantitative knowledge,

(2) Practice; (¶ 9)

b. Work after college. (¶ 10)

2. Competency to appreciate and enjoy: (¶'s 11-13)

a. Demand for breadth of mind as well

as technical skill; (¶ 11)

- b. Means of meeting this demand—(¶'s 12-13)
      - (1) Elevating associations, (¶ 12)
      - (2) Wide reading. (¶ 13)
  - III. An objection anticipated—Author does not depreciate work of engineering school. (¶ 14)
- C. CONCLUSION: Appeal to audience:
  - I. Engineer is charged with his responsibility (technical); (¶ 15)
  - II. Huxley's definition of the well developed man (cultural) (¶'s 16-17)

ADOPT THIS AS A MODEL IN FORM FOR YOUR OUTLINES.

Note: The real purpose of this outline is to reveal the author's architectural plan, the organization of parts, the logical progression, which must precede the full presentation of his broad, abstract subject. An outline is essential to the intelligent and intelligible treatment of any subject worth the while.

As the outline is but a framework, it cannot be expected to record the fine transitions of the finished article. Any process of classification, it should be remembered, is more or less arbitrary. It is convenient to distinguish between parts, but this very distinction tends to obscure the relationship between parts. A synthetic view, however, usually makes the connection reasonably clear.

#### DEVICES OF CONNECTION

- |                             |   |
|-----------------------------|---|
| 1. To imply a SERIES        | { first, second, third, etc.; first, secondly, thirdly, etc.; in the first place, again, furthermore, finally, lastly, etc.                           |
| 2. To imply SIMPLE ADDITION | { and, also, besides, moreover, again, finally, after, next, when, further, furthermore, in addition; it remains to explain; then, too; another, etc. |
| 3. To indicate REFERENCE    | { he, she, it, they, this, those, that, these, etc.; the former, the latter; in this respect, in this way, such, the same, etc.                       |

- |                                  |  |
|----------------------------------|--|
| 4. To express<br>COMPARISON      | { likewise, similarly, in the same way, equally important, more effective, quite as necessary. not so obvious, the analogy is clear, resembling this, in conformity with, corresponding to this, no less significant, etc.   |
| 5. To express CONTRAST           | { however, but, rather, on the other hand, on the contrary, nevertheless, notwithstanding, although, yet, whereas, in contrast to, in spite of, opposed to this, at the same time, to offset this, etc.  |
| 6. To indicate PURPOSE           | { to this end, for this purpose, with this in view, to effect this, to attain this object, to meet this need, etc.   |
| 7. To indicate RESULT            | { therefore, hence, then, accordingly, so, wherefore, for this reason, it follows that, as a result, under these conditions, if this be true, consequently, obviously, naturally, it is clear, the effect is, as might be expected, thus, in short, granted that, etc. |
| 8. To express<br>CHANGE OF TIME  | { at length, next, soon, afterward, whereupon, immediately, after a short time, not long after, at last, finally, meanwhile, later, ultimately, etc.   |
| 9. To express<br>CHANGE OF PLACE | { here, there, yonder, beyond, nearby, opposite, adjacent to, roundabout, diagonally to, on the other side, underneath, above, in either place, eastward, southward, farther on, etc.  |
| 10. To PARTICULARIZE             | { for example, for instance, especially, indeed, at any rate, specifically, in particular, at least, to illustrate, a case in point, etc.  |

11. To ENFORCE the  
THOUGHT

{ truly, really, surely, assuredly, in  
truth, indeed, in fact, very likely,  
certainly, perhaps, naturally, of  
course, at all events, doubtless,  
logically, strictly speaking, the  
point is, that is to say, in other  
words, etc.

12. OTHER MEANS OF  
TRANSITION

{ repetition of words or thought;  
parallel structure (that is, a similar  
order of elements in successive  
sentences).

N. B.—This is a suggestive, not an exhaustive, list of transitional words and phrases. Your reading will offer further devices.

### EXERCISE IN ORGANIZATION OF MATERIAL

NOTE.—Construct a logical outline; (b) supply the necessary transitions; (c) re-paragraph; (d) apply the principle of proportion; (e) improve the sentence structure as required.

#### OPPORTUNITIES FOR YOUNG FORESTERS

1. Forestry is generally regarded as unpractical by people in the United States because either they do not see the value of our forests, or they look at some work of forestry carried out by an inexperienced man where the whole job has resulted in a complete failure. 2. There is in the United States today a great number of positions open to the trained forester. 3. The largest number of these positions is with the government. 4. In the government work the young forester gets the greatest amount of practical experience, because he may be sent to the different parts of the United States to carry on some important work there. 5. In the work of the United States Forest Service Commission, the college trained forester meets with many problems to solve, and in many cases he has to abandon his technical ideas and to solve the problem according to the nature of the surrounding country. 6. There are beginning to be openings in research work in the United States. 7. This was practically unknown in this country a few years ago, but has been carried on in Germany for many years. 8. The most important work that the forester will do in research is in the

study of wood chemicals, both organic and inorganic. 9. The forester will carry on a thorough study of wood entomology for the government. 10. Forestry is carried on very little by private individuals in the United States. 11. The government is making some of the individuals and railroads see that the practice of forestry does pay and a few are beginning to practise forestry on their lands that are not suited for agriculture. 12. Therefore, there is a great call for trained and experienced foresters to carry out the work. 13. In time all the individuals and railroad companies that own land will see the value of forestry and practise forestry extensively on all their idle land, and a large number of foresters will be required to carry out this work. 14. Many large lumber concerns are beginning to employ experienced foresters to harvest their lumber, because the forester is trained to make definite plans as to the best way to lumber a tract of timber. 15. In some localities the farmers are practising "woodlot" forestry. They are beginning to build up their woodlots and are employing the trained forester. 16. The farmers are beginning to see that they must have wood to run the farm and that the woodlot is the place to get this wood. 17. The United States government is employing men to show the farmers who do not realize the need of forestry, that forestry must be practised extensively in the United States, or the timber supply will be exhausted in a few years. 18. The state governments are employing men to show the farmers how to use their waste land and to get returns from it. 19. Many states are starting schools and colleges of forestry. 20. They require many experienced and trained men for instructors. 21. Many experienced and practical men are needed to take charge of the Forest Service Commission at Washington. 22. The many openings and opportunities must give a man some place for him to try his ability as a forester.



## VIII

### WORDS

“YOUR words were not as clear as they should have been. True, it is only a trifling thing; but so is mist on a mirror.”

Thus wrote Mark Twain in kindly criticism of the work of a young writer. “The engraver of a fine picture,” he went on, “revises, and revises, and revises—and then revises, and revises, and revises; and then repeats. And always the charm of that picture grows, under his hand. It was good enough before—told its story, and was beautiful. True: and a lovely girl is lovely, with freckles; but she isn’t at her level best with them.” Then Mark seizes upon the single word *motive*, which he charges the writer with misusing: “When a word is so near the right one that a body can’t quite tell whether it is or isn’t, it’s good politics to strike it out and go for the *Thesaurus*. That’s all. *Motive* may stand; but you have allowed a snake to scream, and I will not concede that that was the best word.”

#### THE FUNCTION OF THE DICTIONARY

“Strike it out and go for the *Thesaurus*,” is excellent advice, for the dictionary was designed for the very purpose of setting us right in our use of words. It has brought together in one place, easy of access, all the words we are likely to need in our own expression or to find in centuries of English literature. It is essentially a “record of the usage of its time,” and gives not only the pronunciation, the derivation, and the meaning of a word, but also its standing in the scale of reputability. It records all words, but it does not accept them all. There are many words of doubtful propriety, but they are always carefully distinguished from the approved list by such warning labels as the following: *colloquial*, *vulgar*, *cant*, *slang*, *obsolete*, *archaic*, *foreign*, etc. In these matters the dictionary is, for all practical purposes, an undisputed authority.

#### THE AUTHORITY OF THE DICTIONARY

But whence is its authority derived? It is derived from the faithful observation of the practice of the majority of the *effective* writers and speakers of the time. It is based not solely

upon the usage of the so-called "masters of *literature*," but upon that of clear and convincing writers and speakers everywhere, regardless of their special interests. In other words, the dictionary has authority only as it has widespread *social approval*.

It is natural, then, that the dictionary should be more or less conservative. Though the language is undergoing a constant change, though many good words of Chaucer's and of Shakespeare's time have been relegated to the ranks of the obsolete, and though some of our present terms are destined soon to be replaced by new inventions, the change, nevertheless, proceeds very naturally and slowly. It is, therefore, not for the individual to blaze a new trail; he must hesitate to adopt new words (slang, foreign terms, etc.) and new meanings for old words until these have been sanctioned by the best dictionaries. Words which appear in the dictionary without a warning label must first have stood the test of wide and reputable use. The dictionary records usage, it does not create it.

#### THE ADVANTAGES OF WORD STUDY

We consult the dictionary chiefly as a matter of necessity. Usually we have one of two purposes; namely, to learn the meaning of an unfamiliar word, or less often, to find the precise word that will express a given idea. The man who has the first purpose is the intensive reader and is in the way to derive much benefit from the dictionary habit. But the man who couples this with the second purpose—to find the exact word—is the writer, the creator, rather than the reader or the critic merely, and he is certain to gain infinitely more.

We must find the inevitable word. As a rule, we have the general idea, a vague conception of what we wish to say, but cannot summon up the concrete symbol of its special sense. We then look in the vocabulary to some word which seems to approximate the desired meaning. We study its etymology to discover its literal or historical value; we consider its special uses; and if it does not meet our purpose, we refer to its synonyms, and by a process of selection and elimination corner the elusive word. If the original word offers the wrong clue, we trace another through all the avenues. A patient search cannot fail.

But this process not only runs down the right word; it also draws our attention to many associated words which are not a

part of our stock in trade. Some unknown or unfamiliar synonyms of the original word are forced upon our notice and almost, if not quite, unconsciously stored away for future use. We associate, for instance, *bishop* with *episcopacy* [AŠ. *biscop*. < Lat. *episcopus*, < Gr. *episcopos*, < *epi*, upon, + *scopeo*, look at]; we find that the words mean *overseer* and *office of overseer*, and that the root is the same little English *scope*, which is found also in *microscope*, *telescope*, *spectroscope*, etc. *Spectroscope* suggests *specter*, *spectrum*, *spectacle*, *spectacles* (eye glasses), *spectacular*, etc.; and *spectacle* suggests the synonymn *exhibition*, *scene*, *view*, *sight*, etc. One word suggests another, and so, both consciously and unconsciously, the dictionary habit promotes vocabulary growth.

There is, accordingly, no valid excuse for an impoverished vocabulary. The chief objection to slang, perhaps, is that it tends to limit one's range of words. It is a "vagabond" and indifferent mode of expression particularly deep-seated in the ranks of the indolent and the uneducated, and its habitual use implies contented ignorance. Spoken slang, to be sure, is generally understood, but it should be remembered that it is associated with the reinforcing agencies of facial expression and of gesture. Dignified speech, on the other hand, needs no such reinforcement; it is adequate in itself. Rather than search his own limited vocabulary or that of the dictionary, the user of slang is satisfied to half-express and to half-suggest his thought. His indolence stunts his vocabulary growth and proportionately dwarfs his intellect. If the student, with all the advantages of his environment, is found in this class of slangmongers, it is of his own election.

Besides greater precision in diction, there is another compensating advantage of word study. As words are but symbols of ideas, it is clear that more words mean more ideas, and a wider range of ideas means a broader vision and a keener understanding of life and its problems.

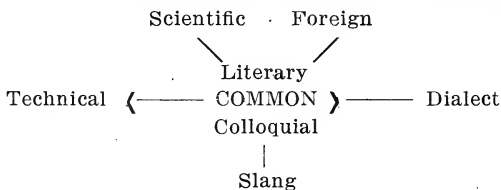
A less tangible, yet none the less real, benefit is the sharpening of the intellect. To distinguish between the many words of related meaning which cluster about a general idea, not only gives one a better conception of the central idea, but also exacts the nicest discrimination and stimulates general intellectual activity. The more extensive the practice, the more efficient the operation of all the faculties. Finally, the increased range

and the consequent precision and spontaneity of thought and expression induce in the writer or speaker a greater confidence (subjective) in his reasoning as well as in his language, and insures conviction (objective) in his readers or his audience. Let us, therefore, use the dictionary as a means to greater efficiency.

#### GOOD USE

A word is said to be in *good use* when it enjoys *social sanction*; or when, as commonly tested, it is in (1) reputable, (2) national, and (3) present use. The scale of good use, from the highest to the lowest, is as follows: (1) reputable or literary English, (2) colloquial (informal, conversational, as *isn't*), (3) provincial (peculiar to a large territory but not national, as *reckon* for *think*). (4) local (limited to a small area, as the *L*, the *subway*, and the *tube* in New York City), (5) slang (careless expressions; often coarse, grotesque, and violent; usually evanescent; as *fire out* for *discharged*, *beat it* for *run away*), (6) vulgar (offensive to good taste, degrading language; as *chaw* for *chew*, to *crown* for to *strike on the head*). The first three are "respectable" English; the last three are of more or less doubtful propriety.

The New English Dictionary gives the following diagram:



#### THE DICTIONARIES

1. *Webster's New International Dictionary* (G. & C. Merriam Company, 1909): one volume; excellent for all ordinary requirements; good in discriminating synonyms.

2. *The New Standard Dictionary* (Funk & Wagnalls Company, 1913): one volume; very complete; good on commercial and technical terms; very modern, being less conservative than *Webster's*.

3. *Century Dictionary and Encyclopedia* (The Century Company): twelve volumes; exhaustive, combining the functions of

a dictionary with those of an encyclopedia; contains much useful material on the arts, trades, and professions.

4. *New English Dictionary*, or "Murray's Dictionary" (Oxford University Press): several volumes, series yet incomplete; very thorough; generally regarded as the final authority on the history of words.

5. Skeat's *Etymological Dictionary of the English Language* (Oxford): authority on derivations.

6. Roget's *Thesaurus of English Words and Phrases* (Longmans, Green & Company): an excellent desk book to help one find the exact word; synonyms and antonyms in all parts of speech.

7. Fernald's *English Synonyms, Antonyms, and Prepositions* (Funk & Wagnalls): excellent for distinctions between words of similar meanings.

8. Crabb's *English Synonyms* (E. P. Dutton & Company.)

9. Soule's *Dictionary of English Synonyms*.

### EXERCISES IN WORD STUDY

1. For dictionary practice, look up the following, noting their derivations: *oesophagus*, *praemunire*, *wit*, *flag*, *fete*, *voice*, *volplane*, *void*, *vociferous*, *buoyant*, *cooperate*, *auxiliary*, *f. o. b.*, *liabilities*, *debit*, *prospect*, *insolvent*, *N. B.*, *viz.*, *paraphernalia*, *securities*, *legitimate*, *civic*, *technical*, *vice versa*.

2. Definition is an aid to alert and accurate thinking. Every definition consists of two parts: (1) the *genus*, or class to which the object belongs; and (2) the *differentia*, or the distinguishing qualities which give it a special place in that class. For example, "a *circle* is [genus] a plane figure [differentia] contained by one line everywhere equally distant from a point within called the center;" or "*elasticity* is [genus] the power of bodies [differentia] to recover their form after compression."

Never define a word in terms of itself.

After the models above, write out definitions of the following: *nature*, *science*, *technique*, *chemistry*, *engineering*, *manufactory*, *area*, *hydraulics*, *alternative*, *creditor*, *statistics*, *linotype*, *dynamo*, *domestic*, *electrolysis*, *resistance*, *energy*, *jurisdiction*, *seminary*, *education*, *geometry*, *proportion*, *space*, *equilibrium*, *data*, *sphere*, *residue*, *universal*, *warrant*, *oxygen*, *acid*, *logic*, *synthesis*, *dimension*, *color*.

3. Without the dictionary or other help, define each of the general terms below and name as many of its synonyms as you

can: *see, speak, give, take, rough, even, dull, sharp, walk, sound, make, hard, cruel, bright, soil, sell, letter, send, write, control, fire, atmosphere, swift.*

4. Discriminate the following synonyms: *class, type, standard, norm; timber, lumber, wood, plank, board; passenger, traveler, tourist, voyager; expand, dilate, enlarge, increase, multiply; compartment, department; architect, contractor, builder, mason; channel, canal, ditch, gutter, furrow; disposition, disposal; scientific, technical; examine, inspect, test; plan, scheme, proposition, project; prospectus, specifications, contract, agreement; catalog, bulletin, register, record; newspaper, magazine, journal, periodical; passage, hall, corridor, vestibule; impact, impetus, momentum, propulsion; mechanic, artisan, artificer, artist; condense, concentrate, reduce, curtail; economy, efficiency, effectiveness, proficiency; practical, practicable, feasible, possible; calculation, estimate, bid; liquid, fluid, series, sequence; flexible, pliable, malleable; minute, microscopic, granular, molecular, atomic; tube, pipe, conduit, main; compound, composition, combination; important, necessary, indispensable, fundamental, vital; adapt, adjust, regulate, repair; implement, tool, instrument, utensil; practical, useful, utilitarian; business, occupation, employment, pursuit; vocation, avocation.*

## IX

### BUSINESS CORRESPONDENCE

#### THE BUSINESS LETTER

“IT is of the greatest importance to write letters well,” wrote Lord Chesterfield to his son; “as this is a talent which unavoidably occurs every day of one’s life, as well in business as in pleasure; and inaccuracies in orthography or in style are never pardoned but in ladies.”

Though Lord Chesterfield gave this advice nearly two hundred years ago (1738), it was never sounder than it is to-day. With the marvelous development of our industrial and commercial life during the last half-century, the business letter has become universally recognized as an indispensable medium of modern business. Take it away, and the whole complex system collapses. It is estimated that over a hundred million dollars a year is spent on form letters alone, and it is said that two mail-order concerns in Chicago do over twenty-five million dollars worth of business a year each. Considering time, salaries, cost of transportation, and actual results, the letter is cheaper and quicker than the personal interview. It, therefore, pays to write a good letter.

The technical man cannot escape the responsibility of equipping himself to do well this phase of his professional work. Other things being equal, the employer prefers every time the man who can write effective letters; and through the letter of application, the employer has an opportunity almost invariably to test the candidate’s ability in this respect before a personal interview is granted or any consideration is given to his strictly technical qualifications. But experience has shown that successful letter-writers are astonishingly rare among engineering graduates. Those who lack the ability soon discover the fact. “When the young engineer faces the problem of conducting an extensive correspondence, he certainly feels his unpreparedness, many of us handling this part of our affairs in a very unsatisfactory manner.” So reads a letter of January 8, 1919, from a recent graduate of this institution, now holding a responsible position with one of the largest corporations in the country. The need has become so pronounced that again and again we

find great manufacturing concerns undertaking, through their house organs, to instruct their employees in the rudiments of business English and correspondence.

## THE STANDARD FORM

The external, mechanical form<sup>\*</sup> of the business letter is now practically fixed by convention. It has been evolved through a long period of experimentation and has been found to serve well. Representative business houses, therefore, look with disfavor upon conspicuous deviations from the accepted standard as abortive and unwarranted. Such liberties tend only to divert the reader's attention from what one has to say, to one's manner of dress—which is, to say the least, poor business policy.

"Individuality in form," writes one concern, "may lead to the grotesque, or the picturesque, if nothing worse. Individual taste may lead one to the gray scarf, another to the blue—safe, inoffensive variations. There is no logical argument against the pink scarf and the green shirt. They will certainly attract attention, as will certain individual vagaries in epistolary forms. But radical departures from dress or epistolary standards offend, unless the resulting gain is great and immediately obvious.

"Take, for example, the single-spaced, typed letter. It is less easy to read, and it hurts the operator's eyes as well as the reader's. It saves paper. This is apparently the only argument for it. Certainly it looks less well: it lacks proportion. As with a book, the length of the type line and the relations between the upper, lower, and side margins mean much to you. They conform to certain standards, the result of long experience, expert experimenting. We have adjusted our tastes, our habits to them. Why go to the trouble of readjustment to new forms unless, weighing the arguments of each side, it is evidently worth while? The change of habits is a strain—will it pay?

"Again, some are advocating, as labor-saving and space-saving, the omission of paragraph indentation. It will save labor and space. It does not look so well—at least now. We might get used to it and come to think it looked better. Is the slight saving of labor, time, and paper space sufficient reason for the strain of breaking away from what is customary and forming new habits?"

"Our feeling is very strong," says another large and reputable house, "that fashion in letters is like all other fashion and there is a certain medium of dignity in discarding the old and adopting the new, for which no exact rule can be laid down and that the good taste of a house is shown in its ability to choose this happy medium. In short, there can be good breeding in business affairs, as well as in all others."



According to a publisher of national reputation, "The vehicle of expression, even from a purely business standpoint, is quite as important as is the thing said."

For the purposes of this course, the form of the MODEL LETTER appended will be strictly adhered to as representing the practice of the most reputable houses.

## THE STATIONERY

Only white bond paper and black ink should be used for business letters. The size of the sheet varies slightly between 8 inches by 10½ inches and 8½ inches by 11 inches, usually the latter. A three-quarter size is sometimes used for a brief note. The ordinary small envelope is No. 6½, measuring 6½ inches long by 3¾ inches wide. Larger envelopes may be used according to the size of the enclosures.

## THE MECHANICS OF THE LETTER

I. NEATNESS. Care in the mechanical make-up of the letter is the first requisite in all business correspondence, for its general appearance creates in the reader's mind the first and often the final impression of the writer. On this point, a large manufacturer writes: "Business letters are an institution in themselves. They are the contacting medium of you and your associates. If so, the importance of the work they can and must do for you can hardly be overestimated. If the letter is to be a real realization of what you are, the question of dress must then be taken into serious consideration. Surely it is your desire to have your representatives of an appearance that will speak of the pride and integrity of your business." One of the departments of the Pennsylvania Railroad instructs its office staff to "do neat and perfect work." It continues more specifically: "The use of the erasing knife for making corrections should be avoided. . . . Letters requiring corrections should be rewritten. . ." In a set of detailed specifications on the method of its correspondence, one of the Washington offices under the United States Department of Agriculture requires that "care should be taken to see that the finished letter is neat, accurate, and well-balanced in every respect."

II. PARTS OF THE LETTER. The following are the parts of the business letter in their usual order [SEE MODEL LETTER]:

1. *Address of writer and date of writing* (information); in upper right-hand corner; not more than three lines, beginning in a perpendicular at the left; single spacing; commas after first two lines, period after last.
2. *Name and Address of the Addressee* (information); beginning at extreme left-hand margin, a double-space below last line of date material; usually not more than three lines (just as on envelope), each line beginning at the margin; single-spaced and punctuated as above (1); abbreviations to be used sparingly—but those commonly authorized may be used in the interest of economy and symmetry; necessary titles or “handles” not to be omitted.
3. *Salutation or greeting* (courtesy); *My dear Sir* (formal), *Dear Sir* (less formal), *Gentlemen*, *Dear Madam*, etc.; one line, beginning flush with left-hand margin; a double-space below last line of addressee material; followed by a colon (:).
4. *Body* (message); paragraphed according to number of items; first line beginning a double-space below the salutation and a letter-space to the right of the colon (of the salutation); all paragraph indentations to begin in a perpendicular determined by the beginning of the first line; short letter to be double-spaced throughout; long letter may be single-spaced within paragraphs but must be double-spaced between paragraphs; right-hand margin to be as even as possible throughout page.
5. *Complimentary closing* (courtesy): *Yours truly*, *Very truly yours*; *Respectfully yours*, *Very respectfully yours* (these two to be used only in addressing persons of superior rank); centered, a double-space below last line of body; only first word capitalized; followed by comma (,); avoid weak participial closing (*Thanking you in advance*, *I am*, etc.).
6. *Signature* or writer's name (information); in lower right-hand corner, balancing with addressee material in upper left-hand corner; a double-space below the complimentary closing; to be full business name, legibly written.
7. *Statement of enclosure*: *Enclosure*, *Enclosures two*, etc.; a double-space below signature, beginning flush with left-hand margin; may be followed by period.

III. TWO-PAGE LETTER. The second sheet must be marked for identification as follows: (1) in upper left-hand corner, flush with margin, initials of person addressed; (2) in center of same line, page number; (3) in upper right-hand corner, flush with margin (same line), abbreviated date in figures. For example:

B. C. B.

2

11/3/18

IV. SEMI-FORMAL LETTER. In addressing a person with whom the writer is personally acquainted, one may use a somewhat less formal salutation and closing: (1) *My dear Mr. Morrow*.; *Dear Mr. Brown*.; (2) *Very truly yours*, *Sincerely yours*. The body of the letter should be businesslike as to a stranger, but it admits of a little more cordiality in expression and tone. Care should be taken, however, not to mix friendship and business too freely, as both are likely to suffer as a result.

V. ENVELOPE. The envelope must be neatly and legibly addressed as follows: (1) addressee's name (as in letter) on median line of envelope, centered; (2) street and number, a double-space below and beginning immediately under the first letter of the first line; (3) city and state (separated by a comma), a double-space below and beginning immediately under the first letter of the second line. The Post Office Department recommends that the address be kept within three lines if possible. No end punctuation is required, except as abbreviations (*N. Y.*, *Mass.*, etc.) are used.

NOTE: The law of symmetry should govern the arrangement of the letter on the page and of the address on the envelope.

#### THE LANGUAGE OF THE LETTER

I. CLEARNESS. The object of all writing is to be clear, but especially is this true of the business letter. Obscurity not only vexes the other party to the correspondence and shakes his confidence in the writer, but it also causes costly mistakes and delays.

The desired clearness is attained by the careful observation of all those basic principles of composition which we have studied elsewhere; particularly coherence as applied in the ordering and separating of the several items to be considered, and in the intelligent use of connectives; and accuracy as applied in sentence structure and choice of words. [SEE ACCURACY] Neglect of such elementary matters as capitalization, punctuation, and spelling are not tolerated.

The Department of Agriculture instruction sheet already referred to emphasizes this accuracy in matters of detail: "Official letters should be free from the following: (a) errors in typewriting, punctuation, spelling, grammar, etc.; (b) unsightly erasures, pen corrections, and interlineations; (c) use

of purely commercial or colloquial expressions; (d) . . . . inconsistent use of 'I' and 'we' in same letter."

II. CONCISENESS. The business letter must be brief and to the point. Diffuse expression not only befores the thought but costs the reader precious time, all of which the writer is likely to pay for in the end. To compress a great deal into a few words does not, however, necessitate the omission of articles, prepositions, and verbal auxiliaries, and the unwarranted use of abbreviations. *Yours of 16th inst. rec'd* mocks at courtesy and good breeding, and is nowhere to be countenanced. [SEE CONDENSATION.]

III. COURTESY. The quality of courtesy in business correspondence demands first of all naturalness of style as opposed to the absurd (if not contemptible) abruptness of the too numerous stereotyped formulae in current use. The language must be altogether free of such hackneyed phrases as *your favor*, *yours at hand*, *in reply would say*, *19th ultimo*, *'same*, *contents duly noted*, *beg to say*, etc.; it must be fresh and original.

Courtesy also involves an attempt to adapt the letter, in content and tone, to the requirements and the tastes (so far as these are known) of the addressee. The manner and spirit of the whole must be conspicuously straightforward and fair, if the transaction is to prove mutually beneficial. The emphasis is upon *you* rather than *I*.

With respect to adaptation, the manager of a great publishing house says, "You can not write to an author in the same way in which you write to a corner drug store that sells school books."

On the same point, another writes: "We try to write such a letter as will show the individuality of the writer. Probably no two persons in this large business would dictate exactly the same form of a communication on the same subject. We however try to put as much of the human element into our letters as we can, in order to convince our readers that we do not represent a soulless corporation."

Concerning courtesy, a third writes: "We hold yearningly fast to the few amenities and courtesies which are left in daily intercourse. They take time, it is true, and labor, but hats will still be raised and doors held open. They may be empty formalities, but those who have business to give like them, and are

influenced by them. We who have business to get have other reasons, personal satisfaction, for using them. The extreme advocates of business efficiency, sometimes lose sight of the trade value of the non-essentials. Economy of courtesy in business is poor thrift."

In the interest of economy there has been an attempt from time to time to abolish the salutation and the complimentary closing, but it has met widespread and pronounced opposition. In this connection, the president of one of America's largest publishing houses makes this very positive statement:

"We are not at all in sympathy with the present tendency to abolish the salutation and the complimentary closing. It is as important that these be carried in a letter as it is that a person should greet another courteously and part with him in a polite manner. In Spanish-American countries our correspondents are so punctilious that the salutation and the closing of their letters are courteous and polite in the extreme. Should we write to one of our correspondents in these Latin-American countries and fail to observe the proprieties as they understand them, they would pay no attention to our letters. There are certain established customs which are good for business people as well as society people to respect, and the polite salutation and closing of a letter which have been in vogue in this country for many years should not be given up. There are business people who appear to think that brusqueness is an evidence of business ability. We do not share their feeling."

IV. FORCE. A good salesman is not only neat, clear, and tactful, but also firm and forceful in his dealings with men. So, too, must be the business letter, our personal representative. Positiveness and confidence, under intelligent control, do not endanger courtesy, but do, on the other hand, command attention and respect as well as convince the correspondent of the merits of your case.

#### THE CONTENTS OF THE LETTER

The contents of the business letter will naturally vary with the nature of the transaction, but the general order is more or less definitely fixed as follows:

1. Acknowledgment of the receipt of your correspondent's letter, giving the date of that letter and the subject of correspondence (the whole preferably mentioned incidentally in the opening sentence).

2. Acknowledgment of possible enclosures.

3. General reply to letter—kind of topic sentence for the whole letter to be written (1 and 2 may sometimes be combined in one sentence with 3, provided they are kept properly subordinate).

4. Detailed reply—a paragraph for each distinct item, following the order of the items in the correspondent's letter (this does not mean a paragraph for every sentence).

5. New topics.

## THE LETTER OF APPLICATION

In mechanics, the letter of application differs in no respect from the common business letter; but in content and language, it is far more exacting. All the requirements of general correspondence must be observed with scrupulous care, and especially must the applicant consciously adapt to the needs of the prospective employer. The applicant should remember that he has no opportunity to correct a first bad impression. Frankness, faithfulness, industry, and service should characterize every application.

The contents of a letter of application, in order, are as follows: (1) specific reference to source of information about the position, (2) age, (3) training (education), (4) experience, (5) reasons for change, (6) references or testimonials with full directions as to persons, addresses, etc., (7) salary expected, (8) polite request for an interview (appointment to be made by the prospective employer). The information must be complete and explicit.

## [MODEL LETTER]

617 Monroe Street,  
Syracuse, New York,  
January 20, 1919.

The Wilson Construction Company,  
1105-1107 Baird Avenue,  
St. Louis, Mo.

Gentlemen:

Yours truly,

Clarence B. Robinson

Enclosure.

[NOTE: This model for the mechanical arrangement of the letter must be strictly adhered to in this course.]

[SEMI-FORMAL LETTER]

735-739 Walnut Street,  
Syracuse, New York,  
January 12, 1919.

Mr. John B. Smith,  
523 Harrison Street,  
Syracuse, New York.

Dear Mr. Smith:

We have been in communication with Mr. George C. Williams, 123 Maple St. Syracuse, regarding the equipment of his new house at 654 Elm Street with screens.

Mr. Williams has concluded to place his order with us and has submitted some data for our guidance, but we cannot furnish him an estimate until we have full and accurate dimensions of the openings to be screened. Please, therefore, see Mr. Williams at your earliest opportunity and transmit to us promptly the required information.

It would be well to point out the special advantages of our Superior Copper Mesh No. A5.

As it appears that Mr. Williams is a contractor, make every effort to clinch the order.

Very sincerely yours,

The Wade Manufacturing Company, Inc.

*Allen H. Black, Manager.*



## EXERCISES IN BUSINESS LETTER-WRITING

1. Write a one-page letter to the Registrar of Syracuse University, stating that you are about to enter college and desire information as to the entrance requirements in the College of Applied Science.

2. Write a two-page letter ordering goods from an out-of-town house, tabulating the items neatly in the center of the page, and giving specific instructions as to grade, quantity, price, and shipment.

3. Write a two-page letter acknowledging the receipt of goods in damaged condition, detailing the nature and amount of damage, and politely requesting an adjustment.

4. Write a two-page letter of application for a summer position, giving detailed information as to your age, education, experience, and other special qualifications.

5. In answer to the following advertisement, write a letter asking for a personal interview:

WANTED. A graduate of an engineering school, with at least two years' experience in structural iron work, as assistant superintendent of our building operations in Pittsburgh, Pa. Salary at start \$150. Satisfaction guarantees permanent employment and advancement. Address H. C. Odell, The McCabe Construction Co., New York.

6. Criticize and rewrite the following letter:

745 Chestnut Street,  
Baltimore, Maryland,  
Sept. 30, 1912.

Mr. H. A. Merriman, Esq.  
311 South Albemarle Avenue,  
Trenton, N. J.

Dear Mr. Merriman,

Your favor of the 4th inst. went astray and we have just received same. In reply we beg to state that we are unable at the present time to fill the order because we are out of the particular kind of brush you desire. Would add, however, that we have recently placed an order for a new supply in the hands of the manufacturers and they should be here not later than the 25th. We will hold your order till that date, and if we are not disappointed, will forward you by mail the necessary brushes within two days.

Hoping that this arrangement will prove entirely satisfactory to you and that we may have your valued orders in the future, we remain

Very Respectfully Yours,  
The Burhans Brush Co.

P. S. The price of the brushes will be \$10 per dozen.

# X

## TECHNICAL DESCRIPTION

### DEFINITION

BESIDES the pure exposition of abstract subjects, such as theories, principles, and processes, a course in technical English involves also some consideration of another type of discourse, which, for want of a better name, is called *technical description*.

Every technical student is called upon from time to time to picture in words, or, as is commonly the case, to *explain* in words, the appearance, construction, and purpose of some concrete mechanical appliance, either for its own sake or as a necessary preliminary to the clear exposition of its operation. The student will at once discover that, from the very nature of things, this new type of discourse is really a hybrid, representing a combination of the method of description as ordinarily defined and that of exposition as we have studied it.

The following outline will enable one to place technical description more definitely as a type of discourse—to fix its purpose and principles.

### EXPOSITION AND DESCRIPTION CONTRASTED

EXPOSITION	DESCRIPTION (General)
<i>Purpose:</i> Primarily to be clear, to give information, to explain.	<i>Purpose:</i> Primarily to interest.
<i>Appeal:</i> To the understanding, to the intellect, to reason.	<i>Appeal:</i> To the imagination and the emotions.
<i>Content:</i> Abstractions—principles, theories, processes, etc.	<i>Content:</i> Concretions—persons, things, places (physical).
<i>Method:</i> Explanation by instances, comparison, contrast, cause and effect, argument, etc.	<i>Method:</i> Presentation of a mental picture by particulars and details, comparison and contrast.

## THE METHOD OF DESCRIPTION

1. *The Point of View.* Just as the expository writer must limit his subject and invent a topic sentence to insure unity and coherence, so too must the descriptive writer fix his angle of vision. Unless the camera is firmly placed, a slight jar will blur the picture. The point of view may be either a physical standpoint, or less often, a mental attitude; it may be either fixed or moving (if direction is clear).

2. *Nucleus of Description.* Every description must contain near the beginning a nucleus of description, or a fundamental image, to give the first general impression of the object or scene as a whole. In function this nucleus is analogous to the outline sentence or paragraph in exposition and is an indispensable means to coherence as well as a valuable aid to unity. It presents in rough outline the framework of the object, together with the number and order of its principal parts, and some idea of their general relationship. A comparison with some simple, familiar object, as a geometric figure or a letter of the alphabet, often puts the nucleus graphically before the reader.

3. *Amplification by Details.* The next step in the development of the description is the filling in of the general outline by means of particulars and details. Comparison and contrast of the unfamiliar with the familiar will enable the reader to understand the object better by relating it to something within his experience. Again the geometric figure is a convenient and effective device because it is stated in a few words, and is instantly clear. In general treatment, literary description is largely selective; technical description, inclusive.

4. *Movement.* The movement is usually from the general to the specific, from large to small, or from near to remote, though in some forms of literary description it is from remote to near. In either case, the direction must be clear and consistent.

5. *Diction.* To enable the reader to visualize readily, picture-making words—words of shape, size, color, sound, motion, number, etc.—should be used. In other words, specific, vivid terms are required.

## LITERARY AND TECHNICAL DESCRIPTION CONTRASTED

### LITERARY DESCRIPTION

*Purpose:* To interest, to entertain.

*Appeal:* Primarily to one's esthetic sense, to the imagination and the emotions, especially through the eye.

*Content:* Persons, landscape, works of art—the beautiful; generally concrete, but often dealing with abstract moods or atmosphere.

*Method:* Usually physical point of view; general outline; amplification or elaboration by detail—generally selective, leaving much to the imagination; personal, idealistic, individual.

### TECHNICAL DESCRIPTION

*Purpose:* To give information, to be clear.

*Appeal:* To the intellect, to the understanding, with less regard for actual visualization.

*Content:* Concrete, physical objects—technical apparatus, buildings, plans, etc., where the emphasis is on the practical value.

*Method:* Usually mental point of view; general outline and working principle, followed by a full, exact description and explanation of parts and their relationships; emphasis on fact, photographic realism. Generalized description, or the description of a class or type rather than of a particular thing, approximates exposition. A technical description is the same to every person; in the extreme type, is so full and explicit as to make reproduction possible. Diagrams often required.

### EXAMPLES OF POINT OF VIEW AND NUCLEUS OF DESCRIPTION

1. "In three parts of the visible circle whose centre is this spire I discern cultivated fields, villages, white country-seats, . . . On the fourth side is the sea. . ."—Hawthorne, *Sights From a Steeple*.

2. "Through the heavy door whose bronze network closes the place of his rest, let us enter the church itself . . . there opens before us a vast cave, hewn out into the form of a cross, and divided into shadowy aisles by many pillars."—Ruskin, "Interior of St. Mark's," *Stones of Venice*.

3. "It [the Yosemite Valley] may be roughly likened to a gigantic trough hollowed in the mountains, nearly at right angles to the irregular trend. . ."—Whitney, *Yosemite Guide-Book*.

4. "Below us, by some trick of eyesight, the country had grown concave, its horizons curving up like the rim of a shallow bowl—a bowl heaped, in point of fact, with sea-fog, but to our eyes with a froth delicate and dazzling as a whipped syllabub of snow."



5. "If we survey Byzantium in the extent which it acquired with the august name of Constantinople, the figure of the Imperial city may be represented under that of an unequal triangle. The obtuse point, which advances towards the east and the shores of Asia, meets and repels the waves of the Thracian Bosphorus. The northern side of the city is bounded by the harbour; and the southern is washed by the Propontis, or Sea of Marmora. The basis of the triangle is opposed to the west, and terminates the continent of Europe."—Gibbon, *Decline and Fall of the Roman Empire*, ch. xvii.

6. "The reader will observe that the Ducal Palace is arranged in the form of a hollow square, of which one side faces the Piazzetta, and another the quay called Riva del Schiavoni; the third is on the dark canal called Rio del Palazzo, and the fourth joins the Church of St. Mark."—Ruskin, *Stones of Venice*.

7. "We shall then see stretched at our feet a number of valleys, not fewer than eight, diverging from the point on which we are supposed to stand, like spokes from the nave of a wheel. First, we note, lying to the southeast, the vale of Langdale, . . ."—Wordsworth, *Guide to the Lakes*, sec. I.)

8. "A confined triangle, perhaps fifty miles its greatest length, and thirty miles its greatest breadth; two elevated rocky barriers, meeting at an angle; three prominent mountains, commanding the plain,—Parnes, Pentelicus, and Hymettus; an unsatisfactory soil; some streams, not always full;—such is about the report which the agent of a London company would have made of Attica."—Newman, "Ancient Athens," *Historical Sketches*.

9. "Manhattan Island is like a tongue of land; the tip is the Battery; the blade is in Central Park, and the roots are in Harlem."

10. "The Bay of Monterey has been compared by no less a person than General Sherman to a bent fishing-hook."—Steven-son, *Across the Plains*.

11. "The submarine portion [of a boat torpedo] has the typical cigar shape of the Whitehead torpedo, and contains both the destructive and the propulsive equipment. . . The surface hull is shaped like the hull of an ordinary surface boat . . ."—*Engineering News*, March 17, 1910.

12 "Imagine Paris taken off like a cover; a bird's-eye view of the subterranean network of sewers will represent on either bank a sort of huge branch engrafted upon the river."—Victor Hugo.

13. "The door-spring consists of a horizontal bronze cylinder, from the middle of which there projects upward an approximately like cylinder, bearing a jointed arm, pivoted and parallel to the top of the second cylinder."

14. "Suppose an inverted capital Y: Lancaster at the foot of the letter; Liverpool at the tip of the right branch; Manchester at the tip of the left . . ."

15. "The steam-engine consists in essence of a cylinder containing a piston which is driven back and forth within the cylinder by the expansive force of steam alternately admitted and released from the opposite ends of the cylinder." [Note that this nucleus contains a statement of the basic principle of operation which explains the reason for the peculiar construction of the object described.]

16. "The throttle valve, as will be seen by reference to Fig. 2, consists of a flat seat, circular in form, having a semicircular opening through it, and a valve whose face is a counterpart of the valve seat." [The diagram or cut in such a case, however, is merely auxiliary; it is used to reinforce the nucleus and must usually remain secondary to the word image. When cuts are used, the reference must be unmistakably clear; the method is usually to refer by letter or number (enclosed within parentheses, as (C) or (4) ) to specific parts.]

17. "The hull is of steel and is divided into five watertight compartments by four transverse bulkheads."—*International Marine Engineering*, July, 1909.

18. "In shape and size this latter instrument [the annunciator of an alarm system] resembles an ordinary mantel-clock. The indications are given by devices on the face. . . ."—*Popular Science Monthly*, vol. xviii, p. 56.

## TRANSITIONS

Transition or connection in technical description is effected largely by means of phrases which locate parts with reference to parts already placed. The following is a suggestive list:

To the right.

Immediately to the left.

On the west wall.

Just south of the centre of the east wall.

Facing the east wall.

Parallel with the longer axis of the room.

Diagonally across the room.

Adjoining this room on the south.

Meeting the opposite wall at right angles.

In the farther corner on the right.

Suspended three feet from the center beam.

Abutting into the room from the west wall, near its southern extremity.

On the north wall, three feet from the floor and adjacent to the east wall, . .

In the nearer left corner.

At the junction of.

Occupying a central position.

Equi-distant from the two corners and from themselves.

Opening into the room from the north wall.

Dividing the wall space into panels measuring.

Confronting the visitor as he enters the first door.

Mounted upon this as a base.

Supporting the superstructure.

Extending upward from the base.

Projecting four inches from the standard at an angle of thirty degrees downward.

This horizontal bar is bolted at the centre to the front side of the standard, near the top.

Rising perpendicularly from the outer edge of this plate.

Occupying the intervening space.

Its horizontal axis mounted upon inverted-V-shaped standards.

Coinciding with its upper surface.

Parallel with the plane of its base.

Intersecting it at right angles.

Ending in a conical cap.

Piercing this shelf at its centre.

Projecting horizontally beyond the side to the distance of three feet.

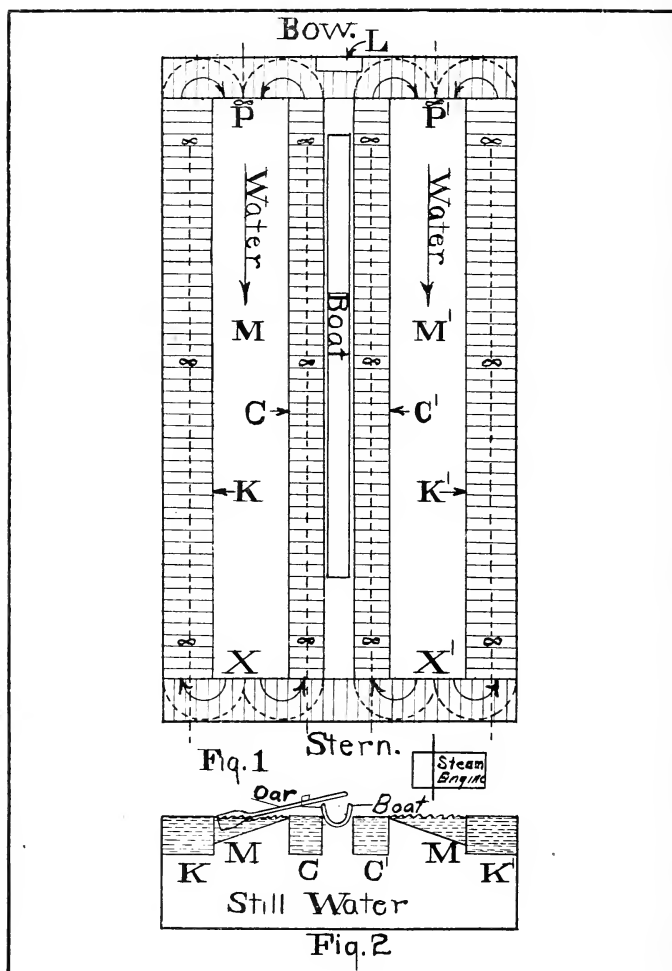
## TECHNICAL DESCRIPTION

### THE SYRACUSE UNIVERSITY ROWING TANK

#### *A Student Theme*

THE invention of the rowing tank at Syracuse University was the result of a long felt need and of careful study by rowing experts. The credit for its design and practical construction is due Mr. J. Harte Cunningham, superintendent of the University buildings, and Mr. James A. Ten Eyck, coach of the University navy, who toiled faithfully together that the crew might be given indoors the benefit of rowing, under out-door conditions. The patented plans appeared in 1910 and the tank was installed in the new Gymnasium.

The principle which underlies the operation of this unique invention is that, whereas in actual out-door rowing, the water remains stationary and the boat moves by the power applied to the oars; in the rowing tank, on the other hand, the boat remains





stationary while the water is forced by propellers past the boat and the speed of the current is increased by the power applied at the oars.

The important parts of the rowing apparatus are as follows: (1) the boat, (2) the water tank, (3) the water propellers, and (4) the source of power for operating the latter.

The boat (Fig. 1) greatly resembles an eight-oared racing shell without the delicate bow and stern gunwales. It is made of more substantial materials than those used in a racing shell, but is equipped with sliding seats, footcups, riggers, oar-locks, and cars, all identical with those of a regulation shell. It is 40 feet long by 2 feet 4 inches wide and floats in the middle of the tank, where it is held at each end by wrought-iron rods equipped with springs fastened to the ends of the tank. As these springs allow the boat plenty of play, while still holding it in position, the boat rocks realistically when the oarsmen do not sit exactly in the middle.

The tank itself is 60 feet long, 31 feet, 4 inches wide, and 7 feet deep. It might be noted here that a tank 3 feet deep would be of sufficient depth. Since the portions of the tank on the two sides of the boat are similarly constructed, we need examine only one side. The portion between the boat and the side of the tank (Fig. 1 and 2) is partitioned off into three distinct compartments or sluiceways extending lengthwise down the tank. The middle, open compartment (M) is for the current of water which rushes from the bow end (B) of the tank to the stern end (S). The other two compartments (C and K), which are completely covered with boards, are the return paths of the water which goes down the middle. It is by means of these three compartments that the same water is used over and over in one continuous circuit.

This construction is shown somewhat more clearly by a cross-section diagram (Fig. 2). The return compartment (C), adjacent to the boat, is 3 feet wide and 3 feet deep. The outer return compartment (K) is 4 feet 4 inches wide, and 3 feet deep. The middle compartment (M) is 7 feet wide and its depth decreases from 3 feet 5 inches adjacent to K, to one inch adjacent to C. The boat floats on a space of water 2 feet 8 inches wide between the return compartments (C and K). As all the water under the boat and under these sluiceways is stationary, it can be seen now that the tank need not have been more than 3 feet in depth. As it is, however, all the construction is supported by vertical beams extending upwards from the bottom of the tank. These, of course, are not seen by the observer.

The propellers used in forcing the water around in this continuous circuit past either side of the boat are double-blade, screw propellers like those used in motor boats. The individual blades of these, measuring from the center of the shaft to the tip, are 7 inches in length. There are in all, fourteen of these

propellers in the tank, one at the bow end of each of the middle sluiceways (P and P<sub>1</sub>, Fig. 1), and three propellers located at equal intervals in each of the four return sluiceways. These propellers hurl the water at a current of 6 or 7 miles an hour, and when there are eight good oarsmen in the boat, the added power from their oars increases the speed of the current to eight miles an hour.

By use of Figure 1, let us follow a drop of water as it goes around this circuit. It starts at the bow propellers (P), where it is forced down the middle sluiceway (M). On its way down this open compartment, the various port oars take hold of it for an instant and hurl it on to the next until it finally comes to the end of the middle sluiceway (M). Here it meets the contrivance which turns it in its course and sends it back through the return sluiceways. This turning contrivance, when viewed from the top, looks like two letter U's, placed side by side to form a rounded W. The drop of water strikes this at X and is divided into two parts, one-half being swirled around into the return sluiceway (C) and the other half into the return compartment (K). Through these return paths, these two parts of the drop are each forced on their way by the three propellers in each compartment. They finally come to the bow end (B) of the tank, where they are swirled around by another W-like contrivance and re-united at P to continue on their way as before.

We will now consider briefly the sources of power for operating these propellers. Most of the power comes from a horizontal-drive, single-cylinder steam engine, capable of generating fifty horsepower. The power is transmitted by belts from the engine shaft to a secondary shaft, and from this to four separate auxiliary shafts. These are located each about 4 feet above the four propeller shafts in the return sluiceways. The transmission between these auxiliary and propeller shafts is effected by chains and sprocket wheels, which are covered by a box-like arrangement.

The remaining power required is supplied from a direct-current electric motor (L Fig. 1), which generates 5 horsepower. The power is transmitted by chains and sprocket wheels, boxed in as before, to each of the two propellers located at the end of the middle sluiceways.

The whole apparatus has been a marked success as the best substitute for out-door rowing yet devised.

NOTE: Though not perfect in detail, this theme adequately illustrates the fundamental principles of a simple technical description.

## XI

### THEME TOPICS

#### TOPICS FOR SHORT TALKS BEFORE THE CLASS

**T**OPICS should be restricted where necessary. In the broader subjects the student should confine himself to the one phase in which he is particularly interested.

Similar topics may be chosen; consult the instructor.

1. The honor system for college examinations.
2. Municipal publicity.
3. The dangers of free trade.
4. The advantages of free trade.
5. The forces that make for world peace.
6. Industrial education in the public school.
7. Is the examination a true test of efficiency?
8. Military training in college.
9. The workmen's compensation law explained.
10. Short professional courses are unsatisfactory.
11. The chief value of intercollegiate athletics.
12. A word for intra-mural athletics.
13. The city should control tree-planting in its streets.
14. Rifle-shooting as a college sport.
15. Electricity in a thunderstorm.
16. Comparative values of Zeppelins and aeroplanes in warfare.
17. A union station for Syracuse.
18. The functions of the state employment bureau.
19. The educational value of moving pictures.
20. The origin of printing.
21. Practical prison reform.
22. Unionism justified.
23. An injustice of unionism.
24. The immigrant in politics.
25. The immigrant versus the American laborer.
26. Charles Robert Darwin's chief contribution to science.

#### TOPICS FOR SHORT EXPOSITIONS.

1. The use of lime in soils.
2. How to row.
3. Welding by electricity.
4. The chief value of military training to the student.

5. The weather barometer explained.
6. How to analyze an essay.
7. Definition of gravity.
8. How to lay a cement sidewalk.
9. Why it hails.
10. The principle of the phonograph.
11. Amateur photography as a recreation.
12. My favorite magazine (*or* author).
13. Two kinds of coherence in English composition.
14. How to fell a tree.
15. The chief danger in the use of slang.
16. How to make a whistle.
17. Courtesy in business correspondence.
18. The disciplinary value of work.
19. When charity is a mistake.
20. The formation of coal.
21. My conception of a gentleman.
22. The best nucleus for a library.
23. The best place to fish.
24. Am I morally bound to keep a promise?
25. What is a bond?
26. How to temper steel.
27. The value of a diary.
28. How to transplant a tree.
29. The function of the foliage of a tree.
30. *Technical* and *scientific* discriminated and illustrated.
31. The principal charm of Mark Twain's works.
32. How to weigh authorities.
33. Why and what is a *preface*?
34. In what sense is English a science?
35. How to measure distance to an inaccessible point.
36. Trolling for pickerel.
37. Why I do not favor military training at college (the chief reason).
38. Why read the daily editorial columns?
39. The place of the typewriter in modern business.
40. A definition of *good taste*.
41. The cause of thunder.
42. The best test for milk.
43. How to take the diameter of a tree.
44. Running a survey.
45. What is freedom of speech?

## TOPICS FOR LONG EXPOSITIONS

1. Saponification.
2. A new use of electricity.
3. Political advertising (Take one definite phase of the subject).
4. Is the aeroplane a practical machine of war?
5. The advantage of the Barge Canal to eastern New York.
6. The great danger in our present immigration system.
7. The bird as the farmer's friend.
8. Commission government would improve conditions in Syracuse.
9. The advantage of municipal control of street railways.
10. The need of the conservation of water-power.
11. Lake improvement in Syracuse.
12. The need of an American merchant marine.
13. The influence of the suburban trolley lines on country life.
14. The value of a crew to the University.
15. The advantages of concrete over other forms of masonry in modern building.
16. Crop rotation.
17. The advisability of free admission to the State Fair.
18. The influence of politics on our public school system.
19. The newspaper as a mold of public opinion.
20. The most effective method of advertising.
21. The value of advertising to industry.
22. Park improvement in Syracuse.
23. Harmony in a band.
24. The value of the industrial department of a railroad.
25. The value of a trained forester to the city park commission.
26. The forester as a conserver of our natural water supply.
27. Syracuse is an ideal location for a university.
28. Why attend a university instead of a small college?
29. The influence of commercialism on our educational policies.
30. The menace of the public dance hall.
31. The value of municipal playgrounds.
32. The chief problems encountered in the construction of the  
——— bridge.
33. Is a union railroad station in Syracuse feasible?
34. The advantages of the State Fair to Syracuse.

35. The necessity of careful inspection and supervision in extensive engineering operations.
36. Over-production as a cause of business failures.
37. On office efficiency often depends the success or failure of the corporation.
38. Business integrity pays.
39. Is the free bread line justified?
40. The chief immediate benefit of forestry practice.
41. Shall we continue to build frame houses?
42. The relation of forestry to the paper industry.
43. The chief dangers of unionism.
44. The advantages of unionism.
45. The board of trade as a publicity commission.
46. The chief benefits of university life to the engineer.
47. Must the engineer (or the forester) divorce himself from art?
48. The construction of a coffer-dam.
49. The importance of a knowledge of geology in engineering construction.
50. What does literature hold for the engineer (or the forester)?
51. The demand for the chemical engineer.
52. Success in engineering is often due to ready adaptation.
53. The value of a farm power plant.
54. The most effective means of fighting the army worm.
55. Converting worn-out woodland into arable fields.
56. When and how to cut timber.
57. How determine the value of a large tract of woodland?
58. The most satisfactory way of locating and laying out a lumber camp.
59. Making the waste products pay. (Select one industry).
60. An argument for state control of large forest tracts.

## TOPICS FOR LONG TECHNICAL DESCRIPTIONS

NOTE.—A technical description is of little value unless detailed and specific. In order, therefore, to give a clear conception of the object described, select a topic with which you are familiar, restrict it according to the requirements of the theme, and treat it thoroughly. For the purposes of a short theme, some part of one of the larger objects named below may be described. It is generally inadvisable, however, for the freshman to undertake the description of any appliance exceedingly complex. He will be most successful with the simple and the familiar. The following is merely a suggestive list.

- |  |   |
|--|---|
| 1. The steam shovel or dredge.             | tem (from furnace to radiator).                                 |
| 2. The automatic block signal.             | 17. The blast furnace.  |
| 3. The most improved elevator.             | 18. The multipolar direct-current generator.                    |
| 4. The fire alarm system of ———            | 19. The telegraph system (transmitting and receiving stations). |
| 5. The four-cylinder gasoline engine.      | 20. The compound microscope.                                    |
| 6. The steam pile-driver.                  | 21. The electric advertising sign (a complex type).             |
| 7. The gasoline fire-engine-and-hose-cart. | 22. The seismograph.  |
| 8. The moving picture machine.             | 23. The motorcycle.   |
| 9. The stereoscopic camera.                | 24. The Greek Doric temple.                                     |
| 10. The cornet.                            | 25. The concrete Water-Gap Bridge (structural features).        |
| 11. The Y-level.                           | 26. The mowing machine.   |
| 12. The most improved automatic rifle.     | 27. The ice-boat (for sailing or for breaking ice).             |
| 13. The titan crane.                       | 28. The improved dirigible balloon.                             |
| 14. The centrifugal snow-plow.             | 29. The linotype machine.                                       |
| 15. The engine lathe.                      |   |
| 16. The steam heating sys-                 |   |

30. The electric traveling crane.
31. The modern theatre building.
32. The phonograph.
33. The railroad drawbridge (restrict to one type).
34. The hand printing press.
35. The railroad mail coach (exterior and interior).
36. A modern library building (interior).
37. The central telephone station.
38. A reinforced concrete dock.
39. A modern lighthouse.
40. The most improved street car.
41. The modern safe-deposit vault.
42. The electric locomotive (limit to the main structural features).
43. The third-rail electric railroad system. (Do not confuse with exposition).
44. The motor coal truck.
45. The steam turbine.
46. The motor race-boat.
47. The double-acting force pump.
48. The battleship turret.
49. The control mechanism of an automobile.
50. The Straight-Line Engine.
51. The calculagraph.
52. The most improved ventilating system (see 43).
53. Hydraulic mining apparatus.
54. A model lumber mill.
55. The automatic fire-extinguishing system (see 43).
56. A modern dairy barn.
57. The modern band saw.
58. The hydroplane.
59. The nursery hothouse.
60. The gasoline orchard-sprayer.
61. The electric furnace.
62. The dendrometer.
63. A refrigeration plant.
64. The welding machine.
65. The stone-crusher.
66. The Syracuse rowing tank.
67. Automobile differential gear.
68. The cash register.
69. The electric automobile starter.
70. The coke oven.
71. An ideal post-office interior.
72. The siphon lock.
73. A seed-extracting plant.
74. An electric incubator and brooder.
75. The cream separator.
76. The automatic railroad switch.
77. The addressograph.
78. The oil-burning traction engine.
79. An acetylene lighting plant for the home.



- |  |   |
|--|---|
| 80. The control mechanism of the street car. | 96. An electric sharpening machine.                         |
| 81. The thermostat.                          | 97. The stamp-canceling machine (P. O.)                     |
| 82. The chain-testing machine.               | 98. A hydraulic power plant.                                |
| 83. A model small passenger station.         | 99. A powerful marine searchlight.                          |
| 84. A modern hennery.                        | 100. A modern passenger-freight ferry-boat.                 |
| 85. A paper-cutting machine.                 | 101. A soldering machine.                                   |
| 86. The hydrostatic press.                   | 102. A down-draft forge.                                    |
| 87. A coast life-saving station.             | 103. A drill press.   |
| 88. A farm windmill.                         | 104. The railroad handcar.                                  |
| 89. The steam hammer.                        | 105. A grain elevator (building).                           |
| 90. A simple planing machine.                | 106. Green Lake and its formation (topographical features). |
| 91. The carbureter.                          | 107. A baking plant.  |
| 92. The hydraulic jack.                      |   |
| 93. A rock-drilling machine.                 |   |
| 94. A permanent forest lookout station.      |   |
| 95. A fish hatchery.                         |   |

## XII.

### READING

**I**N this day of seemingly untrammelled material progress, there comes to every engineer the challenge of leadership, insistent and alluring. If he is to meet this challenge ably and happily, if he is not to be all his days a mere tool in the hands of society,—he must acquaint himself with the great realm of thought which lies outside the narrow confines of his special field of investigation, encompassing, if not engulfing, it. He must be familiar with the great characters and the great events of history; he must keep abreast of his own times. He must know men, and know them intimately, not by direct contact alone, for his individual experience may be very limited, but through the experiences of other and greater men, men who have lived and thought and achieved in his day and yesterday. He must have vision; he must be sensible to the needs and the wrongs of society, and quick and sure in providing a remedy. He must serve men, but he must also inspire men, lifting them by his counsel and his example to a higher plane of action and of thought. This larger conception of his responsibility should fire the soul of every man who has been entrusted, as has the engineer, with the tremendous task of making the world a safe and comfortable place in which to live.

If, then, the engineer is to be actuated by this lofty idealism, if he is to relate himself properly to his profession and his fellows, he must open himself to all the elevating influences his environment offers, but especially must he seek the companionship and the guidance of *books*. For, said Carlyle, "All that mankind has done, thought, gained, or been, is lying in magic preservation in books." But not only do they record the past; they also predict the future. In their pages we find reflected the noblest aspirations of the race as it confidently faces its tomorrow, aspirations to motivate the present generation, but to come to their full fruition perhaps only in the next. Pondering these things, there is not one of us who need not reproach himself with the moments which have slipped irrevocably away in idleness when he might have been in communion with the great minds of books, fitting himself to do more acceptably his given work. In an age of books like the present, no one can escape the moral obligation of being well-read.

"Thou fool! to seek companions in a crowd!  
 Into thy room, and there upon thy knees,  
 Before thy bookshelves, humbly thank thy God,  
 That thou hast friends like these!"

## LIST OF APPROVED READING

### ESSAYS

- |   |  |
|---|--|
| Addison, J., and Steele, R.                     | The Sir Roger de Coverley Papers                       |
| Alden, R. M.                                    | Readings in English Prose of the<br>Eighteenth Century |
| Allen, J. L.                                    | The Blue Grass Region of Kentucky                      |
| Arnold, M.                                      | Essays in Criticism                                    |
|   | Culture and Anarchy                                    |
| Bacon, F.                                       | Essays   |
| Bagehot, W.                                     | Literary Studies                                       |
| Bailey, L. H.                                   | The Holy Earth   |
| Bennett, A.                                     | Essays   |
| Benson, A. C.                                   | From a College Window                                  |
| Berkeley, G.                                    | Principles of Human Knowledge                          |
| Bowman, Bredvold,<br>Greenfield, and<br>Weirick | Essays for College English                             |
| Bradley, A. C.                                  | Shakespearean Tragedy                                  |
|   | Oxford Lectures on Poetry                              |
| Briggs, L. R.                                   | College Life (R.L.S.)                                  |
| Bryce J.  | The American Commonwealth                              |
| Burroughs, J.                                   | Literary Values  |
|   | Sharp Eyes and Other Papers (R.L.S.)                   |
|   | Birds and Bees (R.L.S.)                                |
|   | Afoot and Afloat (R.L.S.)                              |
|   | A Bunch of Herbs and Other Papers<br>(R.L.S.)          |
|   | Locusts and Wild Honey                                 |
| Carlyle, T.                                     | Heroes and Hero Worship                                |
|   | Sartor Resartus  |
| Carpenter and Brewster                          | Modern English Prose                                   |
| Canfield, J. H.                                 | The College Student and His Problems                   |
| Chesterton, G. K.                               | Heretics   |
| Crothers, S. M.                                 | The Gentle Reader                                      |
| Cunliffe and Lomer                              | Writing of To-day (Journalistic<br>Prose)              |

DeQuincey, T.	The English Mail Coach Confessions of an Opium Eater Autobiographical Sketches
Duncan, Beck, and Graves	Prose Specimens
Eason and Weseen	English, Science and Engineering
Eliot, C. W.	The Training for an Effective Life
Emerson, R. W.	Essays, two series English Traits Representative Men The Conduct of Life
Faraday, M.	Experimental Researches in Electricity
Fiske, J.	Essays, Historical and Literary
Foerster, Manchester and Young	Essays for College Men
Foerster and Pierson	American Ideals
Fulton, M. G.	College Life, Its Conditions and Problems
Galsworthy, J.	The Inn of Tranquility
Gardiner, J. H.	The Bible as Literature
Garnett, R.	Essays of an Ex-Librarian
Gates, L. E.	Three Studies in Literature Studies and Appreciations
Hazlitt, W.	Essays
Holmes, O. W.	The Autocrat of the Breakfast Table
Howells, W. D.	Literary Friends and Acquaintances
Husband, J.	America at Work
Huxley, T. H.	Lay Sermons
Irving, W.	The Sketch Book
James, H.	Partial Portraits Portraits of Places
Kurtz, Cory, Blanchard, and MacMinn	Essays in Exposition
Lamb, C.	Essays of Elia Liberty, Peace, and Justice (R.L.S.)
Lockwood, F. C.	The Freshman and His College
Lowell, J. R.	Essays
Macaulay, T. B.	Lord Clive Warren Hastings
Palmer, G. H.	Self-Cultivation in English (R.L.S.)

Pater, W.	Appreciations
	Imaginary Portraits
	The Renaissance
Rice, R.	College and the Future
Roosevelt, Theodore	The Winning of the West
	The Great Adventure
Ruskin, J.	Sesame and Lilies
	Modern Painters
	Crown of Wild Olives
	Seven Lamps of Architecture
Smith, C. A.	What Can Literature Do For Me?
Spencer, H.	Education
Steeves and Ristine	Representative Essays in Modern Thought
Stephen, L.	Hours in a Library
Stevenson, R. L.	Across the Plains
	Memories and Portraits
	Travels with a Donkey
	An Inland Voyage
	Virginibus Puerisque
Tanner, W. M.	Essays and Essay-Writing ( <i>Atlantic Monthly</i> )
Thackeray, W. M.	Roundabout Papers
	Lectures on the English Humorists
Thoreau, H. D.	Walden
Tyndall, J.	Fragments of Science
	Michael Faraday as a Discoverer
Waddell and Harrington	Addresses to Engineering Students
Warner, C. D.	In the Wilderness (R.L.S.)
	My Summer in a Garden
	Back-log Studies
Wilson, Woodrow	Addresses

#### NOVELS

Allen, J. L.	The Choir Invisible
	The Kentucky Warbler
Austen, Jane	Pride and Prejudice
Barrie, J. M.	The Little Minister
	A Window in Thrums
Bennett, A.	Clayhanger
Blackmore, R. D.	Lorna Doone
Bronte, Charlotte	Jane Eyre
	Villette

Bulwer-Lytton, E. L.	The Last Days of Pompeii
Conrad, J.	Youth
	Lord Jim
Clemens, S. L.	(See Mark Twain below.)
Cooper, J. F.	The Last of the Mohicans
	The Spy
Crawford, F. M.	Saracinesca
De Morgan, W.	Joseph Vance
Dickens, C.	A Tale of Two Cities
	Bleak House
	Christmas Stories
Eliot, G.	Adam Bede
	The Mill on the Floss
	Middlemarch
	Romola
Galsworthy, J.	Fraternity
	The Country House
	The Man of Property
	The Patrician
	The Dark Flower
	Beyond
	The Little Man and Other Satires
Garland, H.	They of the High Trails
Gaskell, Mrs.	Cranford
Hardy, T.	Far from the Madding Crowd
	The Woodlanders
	The Return of the Native
	Tess of the D'Urbervilles
Harte, Bret	The Luck of Roaring Camp
Hawthorne, N.	The Marble Faun
	The Scarlet Letter
	The House of Seven Gables
	Twice-Told Tales
Howells, W. D.	The Rise of Silas Lapham
Irving, W.	The Alhambra
James, H.	Roderick Hudson
	The Ambassadors
	The Golden Bowl
Kingsley, C.	Westward Ho
	Hypatia

Kipling, R.	Plain Tales from the Hills Soldiers Three Jungle Book, first and second The Light that Failed
London, J.	The Call of the Wild
Meredith, G.	The Egoist The Ordeal of Richard Feverel
Poe, E. A.	Tales
Reade, C.	The Cloister and the Hearth
Scott, W.	The Heart of Midlothian Kenilworth The Antiquary Quentin Durward Old Mortality Guy Mannering
Stevenson, R. L.	Kidnapped Merry Men Treasure Island The Master of Ballantrae The Wrecker Ebb Tide David Balfour Henry Esmond Vanity Fair Pendennis The Newcomes Barchester Towers Tom Sawyer Huckleberry Finn
Thackeray, W. M.	
Trollope, A.	
Twain, Mark	

#### PLAYS

Barrie, J. M.	Selected Plays
Bjornson, B.	Beyond Our Powers
Browning, R.	A Blot on the 'Scutcheon Colombe's Birthday In a Balcony
Galsworthy, J.	Justice Strife The Pigeon The Eldest Son
Goldsmith, O.	She Stoops to Conquer

Hauptmann, G.	The Sunken Bell
	The Weavers
Ibsen, H.	The Doll's House
	Hedda Gebler
	The Master Builder
Kennedy, C. R.	The Servant in the House
Maeterlink, M.	The Blind
	The Blue Bird
	The Intruder
Masefield, J.	The Tragedy of Nan
Moody, W. V.	The Great Divide
	The Faith Healer
Pinero, A. W.	The Second Mrs. Tanqueray
	The Gay Lord Quex
Rostand, E.	L'Aiglon
	Chanticleer
Shakespeare, W.	Plays
Shaw, G. B.	Plays, Pleasant and Unpleasant
	Plays for Puritans
Sheridan, R. B.	The School for Scandal
	The Rivals
Sudermann, H.	Magda
Synge, J. M.	The Riders to the Sea
	The Shadow of the Glen
	The Play-boy of the Western World
Wilde, O.	The Ideal Husband
	Lady Windermere's Fan
	The Importance of Being Earnest
Yeats, W. B.	The Land of Heart's Desire
	Deidre
Zangwill, I.	The Melting Pot

## BIOGRAPHY AND LETTERS

Arnold, M.	Letters
Bessemmer, Sir H.	Autobiography
Browning, R.	Life by G. K. Chesterton
Carlyle, T.	Letters
Cromwell, O.	Life by T. Roosevelt
Darwin, C.	Life and Letters by F. Darwin
Dickens, C.	Life by J. Forster
Edison, T.	Life by Dyer and Martin



Emerson, R. W.	Life by O. W. Holmes Emerson in Concord, by E. W. Emerson
Erasmus	Life by J. A. Froude
Franklin, B.	Autobiography
Gibbon, E.	Autobiography
Huxley, T.	Life and Letters by L. Huxley
Irving, W.	Life by C. D. Warner
Johnson, Samuel	Life by Boswell
Lincoln, A.	Life by N. Hapgood
Lowell, J. R.	Letters
Macaulay, T. B.	Life by G. O. Trevelyan
Mill, J. S.	Autobiography
Palmer, Alice F.	Life by G. H. Palmer
Pepys, S.	Diary
Ruskin, J.	Letters
Shakespeare, W.	Life by S. Lee
Smiles, S.	Lives of the Engineers
Stevenson, R. L.	Letters
	Life by G. Balfour
Tennyson, A.	Memoir by his Son
Walpole, H.	Letters
Washington, G.	Life by H. C. Lodge

#### POETRY

Arnold, Matthew	Lowell, James Russell
Browning, Robert	Masefield, John
Bryant, William Cullen	Moody, William Vaughn
Burns, Robert	Moore, Thomas
Byron, George Gordon Noel,	Noyes, Alfred
Lord	Palgrave, F. T., <i>The Golden Treasury</i> (R. L. S.)
Carman, Bliss	Poe, Edgar Allen
Emerson, Ralph Waldo	Riley, James Whitcomb
Field, Eugene	Shelley, Percy Bysshe
Gray, Thomas	Tennyson, Alfred
Keats, John	Whitman, Walt
Kipling, Rudyard	Whittier, John Greenleaf
Lanier, Sidney	Wordsworth, William
Longfellow, Henry	Yeats, William Butler
Wadsworth	

NOTE: The foregoing list of reading was originally suggested by a somewhat similar list prepared several years ago by the English Departments of Syracuse University.

## PERIODICALS

### ENGINEERING

The following periodicals are to be had at the Library (Room 23) of the College of Applied Science:

American Machinist	Engineering News-Record*
Electrical Railway Journal	Industrial Management*
Electrical Engineering	Machinery
Electrical World*	Power
Engineering and Mining Journal	Valve World

\*Every engineer should subscribe to one of these three journals.

### FORESTRY

The Library (Room 100-101) of the New York State College of Forestry receives regularly a large number of periodicals on forestry and allied topics. Among them are *The Journal of Forestry* (technical), *American Forestry* (popular), *The Indian Forester* (India), *The Quarterly Journal of Forestry* (British), and several lumber trade journals. The first is recommended as of the greatest value to the student of technical forestry.

Both engineers and foresters will find much interesting and valuable material in *The National Geographic Magazine*.

### GENERAL

All the standard periodical literature is on file in the Periodical Room of the University Library and is available to all students of the University.

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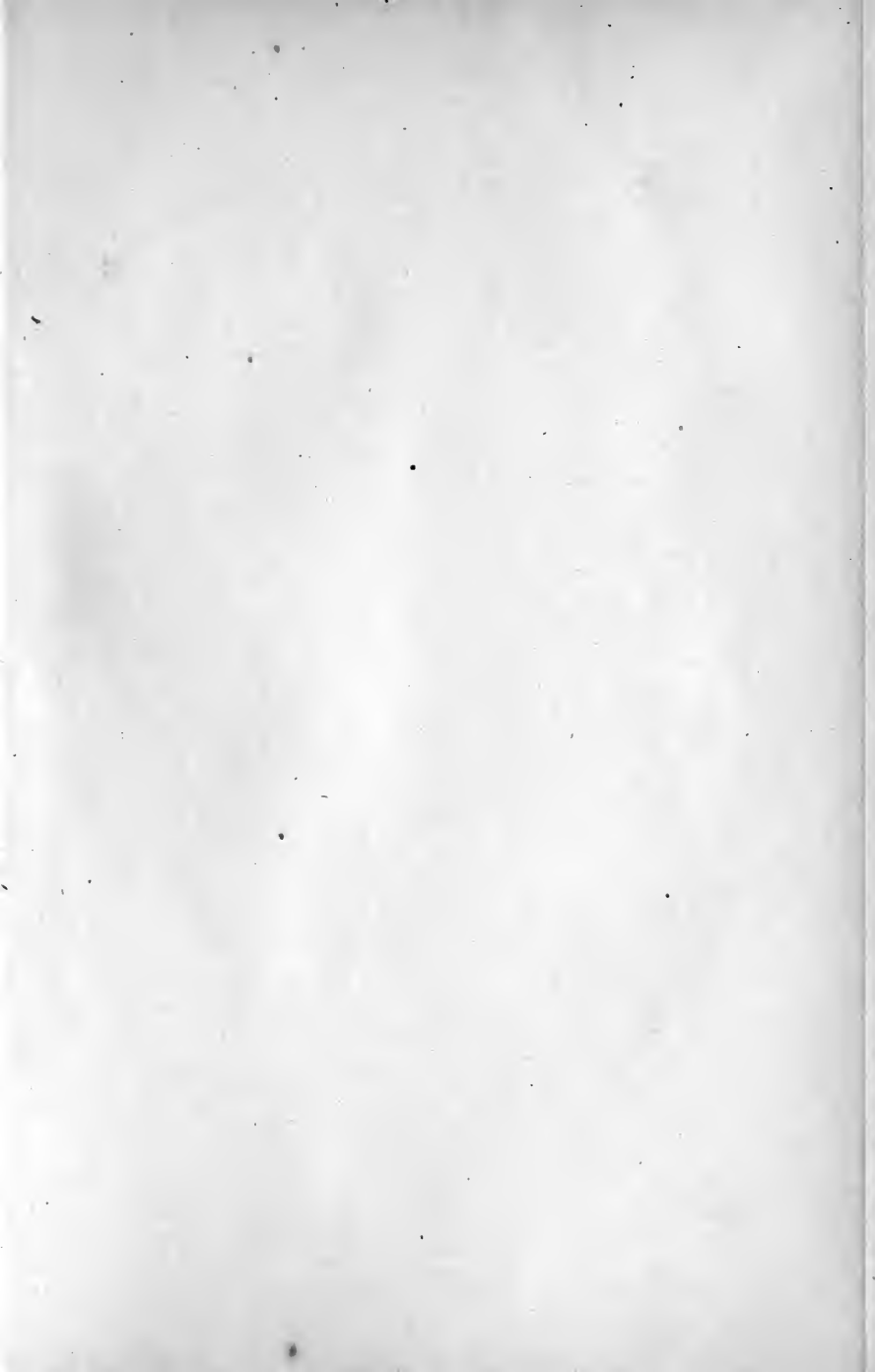
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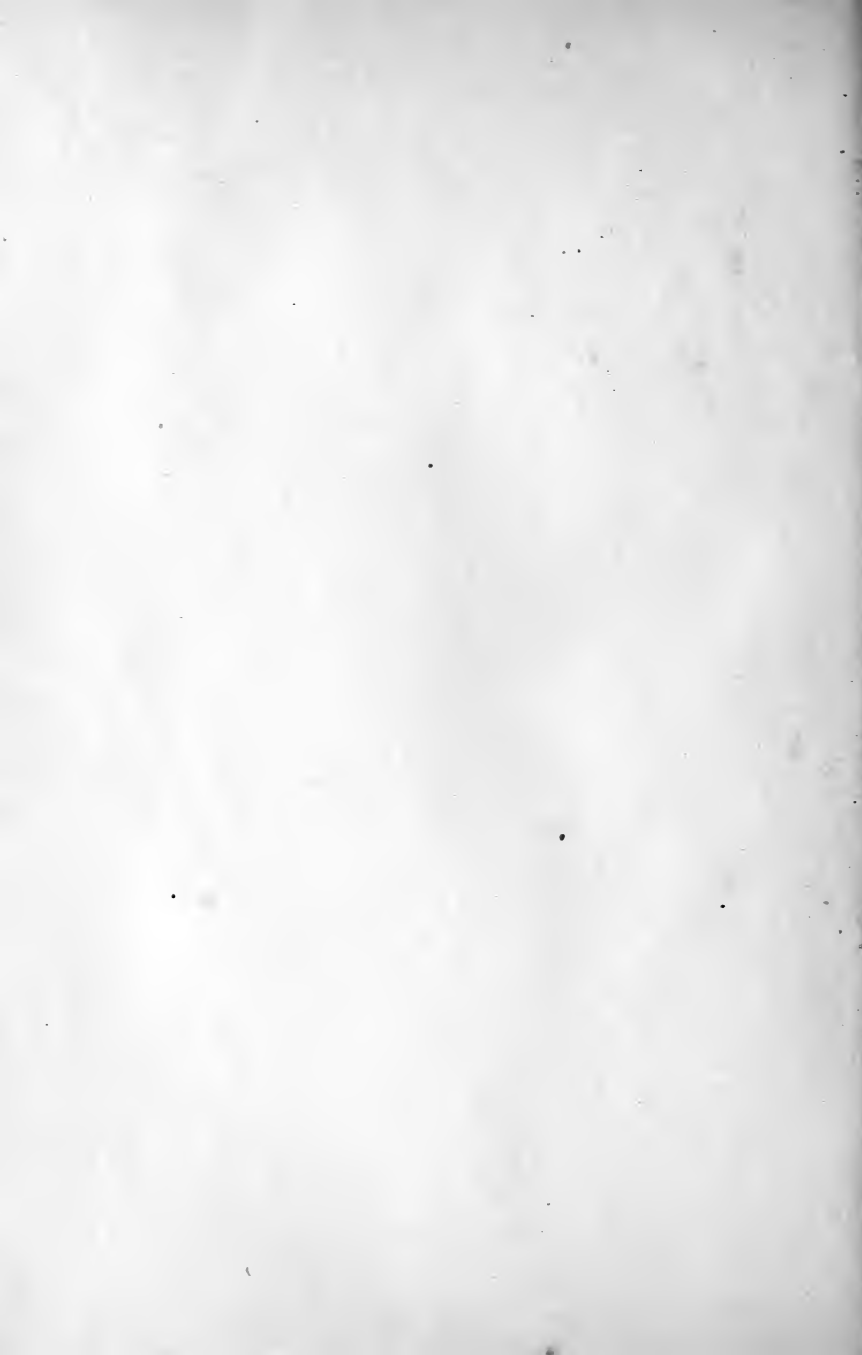
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